Areas of Critical Environmental Concern Datalayer
July 2000

OVERVIEW

The Areas of Critical Environmental Concern (ACEC) datalayer shows the location of areas that have been designated ACECs by the Secretary of Environmental Affairs. ACEC designation requires greater environmental review of certain kinds of proposed development under state agency jurisdiction (state permitting, planning, or funding) within the ACEC boundaries.

The ACEC Program is administered by the Department of Environmental Management (DEM) on behalf of the Secretary of Environmental Affairs. The Massachusetts Coastal Zone Management (MCZM) Office managed the original Coastal ACEC Program from 1978 to 1993, and continues to play a key role in monitoring coastal ACECs. Procedures for ACEC designation and the general policies governing the effects of designation are contained in the ACEC regulations (301 CMR 12.00). For more information about the ACEC datalayer or about the effects of ACEC designation, visit the ACEC Program's website at http://www.state.ma.us/dem/programs/acec or call (617) 727-3160 ext. 552.

The ACEC datalayer has been compiled by MCZM and DEM and includes both coastal and inland areas. New ACEC polygons are added periodically (1/year on average) because the program continues to evaluate and designate new ACECs. Currently the datalayer contains 25 ACECs.

MANUSCRIPT

Polygons are compiled from 1:25,000 USGS quad sheets, 1:5000 orthophotos, or other MassGIS datalayers and digitized.

ATTRIBUTES

This data layer has a .PAT with the following items:

ACECID	Unique identifier of each area
NAME	Name of the ACEC
DES-DATE	Date the ACEC was designated by the Secretary of Environmental Affairs
SECRETARY	The name of the Secretary who signed the designation
AREA-ACRES	Acreage of each polygon in the ACEC (many ACECs have more than one polygon)
ADMIN_BY	Agency responsible for the ACEC
REGION	Coastal or Inland. DEP Wetlands Protection Act Regulations have different performance standards for coastal and inland ACECs

EDITING

Boundaries were snapped to roads, drainage basins, trails, etc. depending on the item defining the edge. Where the snapcover is at a lower resolution than the USGS quad (roads, streams, etc.), data were changed to provide "relative visual accuracy."

MAINTENANCE

DEM continues to add polygons as new ACECs are designated. The most recent was the Miscoe, Warren and Whitehall Waters ACEC in July 2000.

Protected and Recreational Open Space Datalayer
December 2000

OVERVIEW

The protected and recreational open space datalayer contains the boundaries of conservation lands *and* outdoor recreational facilities in Massachusetts. The associated database contains relevant information about each parcel, including ownership, level of protection, public accessibility, assessor's map and lot numbers, and related legal interests held on the land, including conservation restrictions. Conservation and outdoor recreation facilities owned by federal, state, county, municipal, and nonprofit enterprises are included in this datalayer. Privately owned recreation lands and lands with deeded restrictions are also included, as are lands in the Chapter 61 program. The open space sites are set up to link to the 1988 Statewide Comprehensive Outdoor Recreation Plan (SCORP) inventory, which contains facilities and activities data for recreation sites. The SCORP data entry process is currently incomplete.

The datalayer is paneled into 351 town coverages and updates are ongoing. This update effort, coordinated by MassGIS, relies on volunteers from state environmental agencies, regional planning commissions, local watershed associations, town conservation commissions, municipal planning and engineering departments, local and regional nonprofits, and open space planning committees.

Although the initial data collection effort for this data layer has been completed, open space changes continually and this data layer is therefore considered to be under development. Additionally, due to the collaborative nature of this data collection effort, the accuracy and completeness of open space data varies across the state's municipalities. Attributes, while comprehensive in scope, may be incomplete for many parcels.

An evaluation of the accuracy and completeness of open space data for each municipality can be found in the database file OSPST.DBF or in the INFO file OS_STATU (for export files) distributed with open space data. For more information or to obtain the current status of a municipality, please call (617) 626-1076.

The following types of land are included in this datalayer:

conservation land	habitat protection with minimal recreation, such as walking trails
recreation land	outdoor facilities such as town parks, commons, playing fields, school fields, golf courses, bike paths, scout camps, and fish and game clubs. These may be privately or publicly owned facilities.
town forests	
parkways	green buffers along roads, if they are a recognized conservation resource
agricultural land	land protected under an Agricultural Preservation Restriction (APR) and administered by the state Department of Food and Agriculture (DFA)
aquifer protection land	not zoning overlay districts
watershed protection land	not zoning overlay districts
cemeteries	if they are a recognized conservation or recreation resource

Also included for some towns are lands in the Chapter 61 program (61 = Forestry; 61A = Agriculture; 61B = Recreation). These parcel boundaries are not currently available statewide, and may *not* be maintained over time, but can be useful for municipal planning purposes.

ORIGINAL SOURCE MANUSCRIPTS and ORIGINAL PRODUCTION

State and federal lands were originally compiled in 1988 from 1:25,000 scale maps by the Department of Regional Planning and Landscape Architecture at the University of Massachusetts at Amherst. The data were verified and are maintained by each agency of the Executive Office of Environmental Affairs (EOEA). Each agency maintains its own maps according to its own standard operating procedures and the accuracy of these maps varies. Some parcels were drafted onto USGS quadrangles from detailed surveys, while in other cases the exact property boundary is not known. The compilation process that produced a unified manuscript faithfully reproduced the

property boundaries as represented on the agencies' maps. The DFWELE cartographer then compiled onto this manuscript the land holdings of the National Park Service (NPS), US Fish & Wildlife Service (USFWS), and The Trustees of Reservations (TTOR, incomplete). Updating of this coverage began in the fall of 1989 and is ongoing.

Also included in the original open space datalayer were some community and local lands within Berkshire and Essex Counties and the Nashua River Basin. The production methodology varied subtly by region. Compilation of open space holdings in Essex County had already been done by the Essex County Greenbelt Association (ECGA), and these 1:25,000 scale maps were used as the manuscript for Essex County. Manuscripts for Berkshire County were compiled by the Berkshire County Cooperative Extension Service in cooperation with town assessors, conservation commissions, and local land trusts. Manuscripts for the Nashua River Basin were prepared jointly by DFWELE and the Department of Food and Agriculture (DFA) from town assessors maps.

CURRENT SOURCE MANUSCRIPTS and PRODUCTION METHODOLOGY

The open space datalayer is divided into 351 town panels and is held in the MassGIS TOWN library. Existing information (both geographic and attribute) continues to be updated with the assistance of volunteers at the local level and with the assistance of local land trusts and regional planning commissions. The resulting data are variable in their accuracy and completeness. Geographic data sources are predominantly town tax assessor's maps and existing open space plans. We maintain a record of all source maps used. Often these maps have been recompiled by the volunteers onto a standard 1:25,000 basemap produced by MassGIS. The data are then digitized or scanned from these basemaps. In other cases data may be digitized from a map supplied by our volunteer if this map meets minimum digitizing requirements. Increasingly, data are also pulled into the open space coverage from preexisting digital data layers provided by a municipality, regional planning agency, or state agency. All polygons bordering a road, stream, pond, town boundary, or coastline are coded according to the coincident feature. The production methodology used with each town coverage and an evaluation of the quality of source materials can be found in the ospst.dbf file or the OS_STATU info file included in the data export.

NOTE ON APPROPRIATE USE OF DATA:
These data are very useful for most statewide and regional planning purposes. However, they are <u>not</u> a legal record of ownership, and the user should understand that parcel representations are generally not based on property surveys.

ONGOING DATA ENHANCEMENTS

SCORP attributes are being updated with data provided by volunteers; additional information will be available for many recreation sites, including available facilities and suitable activities. All sites purchased with funds administered by the Division of Conservation Resources (DCS), EOEA are being added to the data layer, including sites in the Self-Help and Urban Self-Help programs. All Conservation Restrictions approved by the Secretary of EOEA will be added to the data layer. MassGIS is also attempting to map Chapter 61 lands in all municipalities.

Regions exist in a subclass called REGSITE. These regions are classified by site name so that multiple adjacent parcels with identical property names are grouped together as a site. This is useful for linking annotation and SCORP information to sites. The region attribute table (.patregsite) contains a subset of the fields in the polygon attribute table including SITE_NAME, SCORP_ID, FEE_OWNER, SYMOP1 and a field called REGION-ID used for linking to annotation. Annotation has been added to display property names and owners in two subclasses anno.site and anno.owner. Site name annotation exists in four levels so that annotation can be displayed at a variety of scales. The text attribute table (.tat) contains the item REGION-ID to link annotation to regions (sites). This anno will be edited as towns get updated.

DATAFILE NAME: OSP.PAT
53 ITEMS: STARTING IN POSITION 1

COLITEM	NAME	WDTH	OPUT	TYP	N.DEC	
1	AREA	4	12	F	3	
5	PERIMETER	4	12	F	3	
9	OS#	4	5	B	0	
13	OS-ID	4	5	B	0	
17	TOWN-ID	3	3	I	-	
20	POLY-ID	4	4	I	-	
24	COUNTY_CODE	2	2	I	-	
26	SCORP_ID	6	6	I	-	
32	FEE_OWNER	20	20	C	-	
52	STATUS_FEE_OWNER	1	1	C	-	
53	MANAGER	20	20	C	-	
73	STATUS_MANAGER	1	1	C	-	
74	OTHER_1	20	20	C	-	Enterprise(s) holding a
94	INT_1	4	4	C	-	legal interest, other than
98	STATUS_1	1	1	C	-	owner, in this land. **
99	OTHER_2	20	20	C	-	
119	INT_2	4	4	C	-	
123	STATUS_2	1	1	C	-	
124	OTHER_3	20	20	C	-	
144	INT_3	4	4	C	-	
148	STATUS_3	1	1	C	-	
149	GRANTPROG1	10	10	C	-	
159	GRANTSTAT1	1	1	C	-	
160	GRANTPROG2	10	10	C	-	
170	GRANTSTAT2	1	1	C	-	
171	SITE_NAME	30	30	C	-	
201	AREA_ACRES	9	9	N	2	
210	ASSESS_ACRES	9	9	N	2	
219	DEED_ACRES	9	9	N	2	
228	PROJ_ID1	10	10	C	-	For EOEA legal interests only.
238	PROJ_ID2	10	10	C	-	For EOEA legal interests only.
248	PROJ_ID3	10	10	C	-	For EOEA legal interests only.
258	FY_FUNDING	4	4	I	-	
262	CAL_YR_REC	4	4	I	-	
266	BOND_ACCT	10	10	C	-	For EOEA legal interests only
276	PRIMARY_PURP	1	1	C	-	Primary purpose
277	PUB_ACCESS	1	1	C	-	Public access
278	LEV_PROT	1	1	C	-	Level of protection
279	CH61_PROG	1	1	C	-	
280	EOEAINVOLV	1	1	I	-	
280	OS_DEED_BOOK	6	6	I	-	
286	OS_DEED_PAGE	4	4	I	-	
290	ASSESS_MAP	5	5	C	-	
295	ASSESS_BLK	5	5	C	-	
300	ASSESS_LOT	5	5	C	-	
305	ASSESS_SUBLOT	5	5	C	-	
310	BASE_MAP	6	6	C	-	MassGIS base map number.
316	SOURCE_MAP	6	6	C	-	Volunteer's map.
322	COMMENTS	60	60	C	-	
382	DFWFLAG	2	2	C	-	
384	POLY-DATE	8	8	D	-	Date polygon was digitized.
392	ATT-DATE	8	8	D	-	Date attributes were entered.
400	SYMOP1	16	16	C	-	(Used for plotting maps with symbol LUT)
416	CR/APR	4	4	c	-	(Used for plotting maps with symbol LUT)
	** REDEFINED ITEMS **					
17	OS_ID	7	7	I	-	Unique GIS identifier
382	FLAG1	1	1	C	-	
383	FLAG2	1	1	C	-	
20	Z1	1	1	C	-	
20	Z2	2	2	C	-	
20	Z3	3	3	C	-	
17	TILE-NAME	3	3	C	-	
228	PROJECTIDS	30	30	c	-	

** The fields OTHER_<#>, INT_<#>, and STATUS_<#> together describe an enterprise holding a legal interest, other than fee_owner, on the land.

See next page for codes used.

MAINTENANCE

MassGIS is maintaining this datalayer. Any updates or corrections sent to MassGIS will be verified and incorporated into the datalayer. Please refer to the OS_ID when informing us of incorrect data. Anyone wishing to volunteer to gather information for their town for inclusion in this datalayer should also contact MassGIS at (617) 626-1076.

CODE DESCRIPTIONS FOR OPEN SPACE

(Within each section all codes are applicable to all fields)

1. STATUS FIELDS

Field:	Code:	Description:
STATUS_OWNER (SFO)	F	Federal
STATUS_MANAGER	S	State
STATUS_1	C	County
STATUS_2	M	Municipal
STATUS_3	N	Private Nonprofit (e.g.TTOR, MAS, local land trusts)
	P	Private for profit (individuals, country clubs, privately owned campsites, rod & gun clubs, etc.)
	B	Public Nonprofit (offshoots of public entities usually created because most public entities are not eligable for many grant programs so they set up 'foundations' or 'centers' to qualify for grants.)
	O	None of the above (e.g., joint ownership)
	X	Unknown
	I	Inholding (a piece of unprotected property surrounded on all sides by a protected property or a recreational facility)
	W	Water body (entire polygon is water)
		Unconfirmed:
	1	State or state (alternate state agencies)
	2	State or non-profit
	3	State or municipality
	4	State or private landowner

2. INTEREST FIELDS

Field:	Code:	Description:
INT_1	CR	Conservation Restriction
INT_2	APR	Agricultural Preservation Restriction
INT_3	CAPR	Conservation / Agricultural Preservation Restriction
	AQR	Aquifer Protection
	AR	Air Rights
	HPR	Historic Preservation
	EASE	Easement (official restriction only)
	WR	Watershed Restriction (local)
	WRP	Wetlands Restriction (Program)
	OLI	Other Legal Restriction
	ROW	Right of Way
	LH	Lease Holding

3. GRANT PROGRAMS

Field:	Code:	Description:
		State programs:
GRANTPROG1	ALA	Aquifer Lands Acquisition
GRANTPROG2	SH	State Self-help
	USH	Urban Self-help
		Federal programs:
	LWCF	Land and Water Conservation Fund
	FF	Other federal funds

4. PUBLIC ACCESS TYPES

Field:	Code:	Description:
PUB_ACCESS (PA)		

Y	Yes (open to public)
N	No (not open to public)
L	Limited (membership only)
X	Unknown

1	Public
2	Public (residents only)
3	Public (seasonal)
4	Private (public welcome)
5	Private (members only)
6	None

5. PRIMARY PURPOSE

Field: Code: Description:

PRIMARY_PURP (PP)

R	Recreation (activities are facility based)
C	Conservation (activities are non-facility based)
B	Recreation and Conservation
H	Historical / Cultural
A	Agriculture
W	Water Supply Protection
S	Scenic (official designation only)
O	Other (explain)
X	Unknown

6. LEVEL OF PROTECTION

Field: Code: Description:

LEV_PROT (LP)

P	In perpetuity
T	Temporary (Chapter 61, 61A, 61B, some CRs)
L	Limited (by something other than time)
N	None
X	Unknown

7. CHAPTER 61 TYPE

Field: Code: Description:

CH61_PROG

F	CH61 (Forestry)
A	CH61A (Agriculture)
B	CH61B (Recreation)
Y	In Chapter61 program; specific land use unknown

8. OWNERSHIP ABBREVIATIONS

Field: Code: Description:

FEE_OWNER (FO)	eg. M<town-id>SD = Town of <town-id> School Department
MANAGER	eg. M004 = Town of Adams
OTHER_1	eg. M004SD = Town of Adams school department
OTHER_2	MGLT = Mount Grace Land Trust
OTHER_3	(A file containing all abbreviations used in these fields, such as SD and MGLT above, is available upon request.)

9. ACQUISITION SUPPORT PROVIDED BY THE EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

Field: Code: Description:

EOEAINVOLV

1	a. Fee ownership or other legal interest held by an EOEA agency, or b. DCS contributed or administered acquisition monies
2	Conservation restriction registered with DCS and not held by an EOEA agency

ARC CODES

Field: Code:		Description
CODE	1	Town boundary
	2	Road
	3	Stream
	4	Pond or lake shore
	5	Coastline
	6	Train line
	7	Road / railroad right of way
	8	Utility right of way
	9	Not sure if feature is coincident

Public Access Board Sites Datalayer
December 1995

OVERVIEW

Massachusetts is blessed with over 1200 miles of seashore and hundreds of lakes, ponds, and streams. The Public Access Board (PAB) in the Department of Fisheries, Wildlife and Environmental Law Enforcement is charged with providing access to these many waterways. Presently, the agency oversees boat and canoe launch sites at over 170 coastal and inland locations in Massachusetts.

This point layer contains 164 sites. The principal source for this layer has been Public Access to the Waters of Massachusetts published by the PAB. Additional sites have been digitized from USGS topographic quadrangles.

This datalayer is stored as a single statewide coverage, **PAB**, in the STATE library.

ATTRIBUTES

The datalayer has a .PAT (Polygon Attribute Table) with the following items:

COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	ALTERNATE NAME	COMMENTS
1	AREA	4	12	F	3		
5	PERIMETER	4	12	F	3		
9	PAB_SITES#	4	5	B	0		
13	PAB_SITES-ID	4	5	B	0		
17	PAGE	3	3	I	-		Page in book
20	MAINTRESP	30	30	C	-	MANAGINGAUTHORIT	Maintenance and management responsibility
50	LRAMPTYPE	8	8	C	-		Launch ramp type
58	NORAMPS	3	3	I	-		No. ramps
61	NOPARKSP	4	4	I	-		No. parking spaces
65	CONDITION	4	4	C	-		Condition of ramp
69	FEE	1	1	C	-		Fee required?
70	STKPRMT	1	1	C	-		Sticker required?
71	RESTRKT	1	1	C	-		Restrictions?
72	COMMENT	30	30	C			
102	FACNAME	35	35	C	-		Facility name
137	TOWN-ID	4	5	B	0	MASSGIS-TOWN-COD	
141	TOWN	21	21	C	-	TOWN-NAME	
162	QUADS-ID	4	5	B	0		
166	QUAD-NAME	25	25	C	-		Quad name
191	DOUBLEQUAD	18	19	C	-		

Note: Shapefiles cannot handle info item names longer than 10 characters. If you are working with shape files see the MASSGIS provided file, INFO2SHP.DBF for the translation table.

MAINTENANCE

Maintained by DFWELE GIS program in cooperation with the Public Access Board

Canoe Trips and Access Points Datalayers
March 1997

OVERVIEW

This layer consists of two coverages: an arc coverage representing canoe trips and a point coverage representing canoe access and portage sites. It is not yet statewide in extent. Currently it covers the Merrimack River Basin System (Megabasin). These coverages are stored in the STATE library. The layer names are **CANOETRIPS** and **CANOEACCESS** with coverage names **RIVTRIP** and **RIVRECPT**, respectively.

The trip coverage was derived from the Appalachian Mountain Club's River Guide. It represents canoe trips and associated portages and was created by selecting arcs from MassGIS 1:25,000 hydro based on descriptions in the River Guide. Centerlines were created where needed to obtain a single line coverage. The coverage uses look-up tables for storing its trip and portage related information.

The access points coverage was created using not only the AMC River Guide, but Nashua River Watershed Association and Merrimack River Watershed Council guides as well. Trips from those guides were not recorded. Where applicable, trip ids were stored with the points. Access points were located by relating descriptions in the river guides to MassGIS road and river datalayers. In some cases, the organizations were called for clarification.

ATTRIBUTES

There are five lookup tables associated with the point coverage: RIVRECPT.DRT (directions about access or portage); RIVRECPT.DSC (description of site); RIVRECPT.FAC (description of parking or boat ramp); RIVRECPT.OWN (description of owner of site); RIVRECPT.MAN (description of manager of site); and two lookup tables associated with the line coverage: RIVTRIP.PRT (portage information) and RIVTRIP.TRP (trip information), see detailed list of items in the line coverage lookup tables below.

NOTE: Shapefiles cannot handle info item names longer than 10 characters. If you are working with shape files see the MASSGIS provided file, INFO2SHP.DBF for the translation table.

Items in the RIVTRIP.AAT

TRIPNO	Unique id for each trip in the coverage which is used to relate to the Rivtrips.lut and the Portages.lut
TYPE	Formatted as XY, where X = 'T' and represents a trip segment (TS); or where X = 'P' and represents a portage. Y = the number of the portage in trip (ie: 1st portage or 2nd portage...)

Items in the RIVRECPT.PAT

RIVRECPT-ID	Unique id for each point in the coverage which is used to relate to the following point .luts (RIVRECPT.DSC; R IVRECPT.FAC; RIVRECPT.OWN; RIVRECPT.MAN; RIVRECPT.DRT)
AMC90A	Composite id of AMC trip points. Includes AMC trip #, point type (Trip or Portage); point # within a trip, beginning or ending id and AMC page #. See Examples below for an example of points along the Squannacook River.
SARIS-ID	Unique ID of river
AMC90B	Composite id identifying point in terms of second trip in which it occurs in the AMC River Guide. (NOTE: Used in lieu of an "intersection table" since INFO does not handle multiple sequential joins.)
AMC90C	Composite id identifying point in terms of third trip in which it occurs in the AMC River Guide (See note above.)
PAB_SITES-ID	Unique id representing Public Access Sites, refers back to ID in MASSGIS PAB datalayer.
MRWC87	Access point from Merrimack River Watershed Council, 1987.
TNRCG94	Access point from The Nashua River Canoe Guide, 1994.

The following items are included in the RIVRECPT.PAT to simplify identifying whether or not additional information exists in a look-up table.

PTDIRECTTRUE	Yes or No? Go to RIVRECPT.DRT for directions about portage from river or access from road to site.
PTDESCRIPTTRUE	Yes or No? Go to RIVRECPT.DSC for description of site.
PTFACILTRUE	Yes or No? Go to RIVRECPT.FAC for description of parking availability or boat ramp.
PTOWNTRUE	Yes or No? Go to RIVRECPT.OWN for decription of owner of site where available.
PTMNGTRUE	Yes or No? Go to RIVRECPT.MAN for description of manager of site where available.

ACPERMISSIONREQ Permission required from owner or manager to use access point, Yes or No?

Items in the RIVTRIP.TRP

TRIPNO	trip number and relate item to .pat
SOURCE	source of trip - AMC RIVER GUIDE, 1990
TRIPNAME	name of trip in AMC River Guide
YEARCHECK	year in which trip data was checked for AMC River Guide
SARIS-ID	unique river id
MILES	length of trip
NAVIG	describes navigability of water
SCENERY	scenery found along trip
TILES	name of quad
BASIN	name of river basin
PORTAGE	number of portages
HAZOBSTR	describes hazardous obstructions mentioned in text
DESCRIPTION	describes water passage (flat,quick,pond,tidal, etc)
COMMENTS	comments from text- may highlight dangers or scenic sites

Items in the RIVTRIP.PRT

TRIPNO	trip number and relate item to .pat
SOURCE	source of portage - AMC RIVER GUIDE 1990.
PORTNO	portage number
DISTFRBEG	distance of portage from beginning of trip
LENGTH	length of portage
DWNSTRMSIDE	side of river portage found
OBSTACLE	reason for portage
LOCATION	town

NOTE:

To relate from the point coverage to its look up tables use the following: in the .pat use the item - RIVRECPT-ID to the item in the .lut - ACCESSPTS-ID.

To relate from the line coverage to its lookup tables use the following: in the .aat use the item - TRIPNO to the item in the .lut - TRIPNO

Example of a relate from the RIVRECPT.PRL table. Use RELATE RESTORE to refer to any of the relates needed to recover the data from the .luts:

```
RELATION=  DIRREL
TABLE-ID=   $BASIN/DATABASE/RIVRECPT.DRT
DATABASE=INFO
ITEM=        RIVRECPT-ID
COLUMN=    ACCESSPTS-ID
TYPE=        LINEAR
ACCESS=    RO
```

Example of AMC90A attributes along the Squannacook River.

AMC90A HOW THE ITEM DECODES

08T1B204 trip # 08; Trip; 1st put in option* for beginning of trip; page 204 indicates first mention of trip in book
08T1E204trip # 08; Trip; 1st take out option* for ending of trip; page 204 indicates first mention of trip in book
08T2E204trip # 08; Trip; 2nd take out option for ending of trip; page 204 indicates first mention of trip in book
08P1B204trip # 08; Portage; beginning of 1st portage; page 204 indicates first mention of trip in book
08P1E204trip # 08; Portage, end of 1st portage; page 204 indicates first mention of trip in book
08P2B204trip # 08; Portage, beginning of 2nd portage; page 204 indicates first mention of trip in book
08P2E204trip # 08; Portage, end of 2nd portage; page 204 indicates first mention of trip in book
08P3B204trip # 08; Portage, beginning of 3rd portage; page 204 indicates first mention of trip in book
08P3E204trip # 08; Portage, end of 3rd portage; page 204 indicates first mention of trip in book
08P4B204trip # 08; Portage, beginning of 4th portage; page 204 indicates first mention of trip in book
08P4E204trip # 08; Portage, end of 4th portage; page 204 indicates first mention of trip in book

*Option refers to the possibility of more than one put in site for the beginning of a trip or more than one take out site for the ending of a trip.

Scenic Landscapes Datalayer
July 1999

OVERVIEW

The Scenic Landscapes datalayer depicts areas identified as part of the Massachusetts Landscape Inventory Project, Department of Environmental Management, 1981. The data is general in nature and is intended for general planning purposes only. DEM's office of Historic Resources is currently launching a project to inventory significant cultural, historic, and scenic landscapes. This effort may update or even replace this data layer. The layer is stored as a single statewide coverage named **SCEN-INV**.

PRODUCTION

This datalayer was digitized by staff at The Trustees Of Reservations. The information was digitized from a map contained within the Landscape Inventory Project report. MassGIS processed the coverage for linework generalization and smoothing.

ATTRIBUTES

The attribute SCENIC is coded "Y" for all polygons designated as scenic. Six polygons coded "N" are non-scenic areas surrounded by scenic landscapes.

MAINTENANCE

The Department of Environmental Management is maintaining this datalayer. For more information contact Patrice Kish, Director of the Office of Historic Resources (617) 626-1378.

State Register of Historic Places Datalayers
January 2000

OVERVIEW

The State Register of Historic Places (SRHP) datalayers consist of both point and polygon coverages which represent locations or boundaries of significant historic properties and sites with legal designations under several specific local, state and federal statutes (see designations under Attributes, below). The SRHP was established by MGL ch. 9 ss. 26-27c as amended by Chapter 152 of the Acts of 1982 and Chapter 254 of the Acts of 1985, and is maintained by the Massachusetts Historical Commission (MHC) in the Office of the Secretary of the Commonwealth. Historic resources in the SRHP include buildings, structures, objects, sites, landscapes and districts. Locational information on archaeological sites in the SRHP is not a public record, and therefore archaeological sites are not included in the current datalayers. A separate datalayer for SRHP archaeological sites is under development. The data are stored as five separate statewide coverages, named SRHP1, SRHP2, SRHP3, SRHP4 (all polygon coverages), and SRHPPT (a point coverage).

All maps displaying these layers must include the following disclaimer:

> "Historic Districts - Massachusetts Historical Commission: This is a beta version and does not reflect listings past 1997. Users should consult the most recent State Register of Historic Places (available at the State House Bookstore) for updates. Listings are regularly updated in the weekly State Register."

PRODUCTION

MHC staff developed these datalayers. The information was compiled on and digitized from USGS 7.5 minute quads at 1:25000 and 1:24000 scales, and from a variety of other source maps on file with the MHC. The accuracy of these maps varies, and editing of the datalayers continues. For smaller parcels and those for which parcel boundaries are not available, a center point has been digitized (stored in SRHPPT). Boundaries have been digitized for larger properties and districts (SRHP1-4). Due to overlaps in districts, polygons are currently contained in four coverages. Future updates will attempt to combine the data into one layer. Parcel and district boundaries are for planning purposes only, and are not currently accurate at the local parcel scale.

ATTRIBUTES

The SRPH polygon datalayers include the following attributes:

MHCN	MHC's unique identifier for a property, either a three-character town code followed by a numeric id, or a four-digit temporary numeric id.
TOWN	Three-character town code.
HISTNAME	Historic name of the property as it appears in the SRHP.
ST_NO	Street number of street address line.
STREET_NAM	Street name of address line.

The following 11 attributes represent codes for SRHP designations. Association of a designation with a property is signified by a "Y" in the designation field. Definitions of these designations appear in the published version of the SRHP.

LL	Local Landmark
MAHL	Massachusetts Archaeological Landmark or Massachusetts Historic Landmark
NHL	National Historic Landmark
NRDIS	National Register District
NRDOE	National Register Determination of Eligibility
NRIND	National Register Individual property
NRMPS	National Register Multiple Property Submission
NRMRA	National Register Multiple Resource Area
NRTRA	National Register Thematic Resource Area
PR	Preservation Restriction
LHD	Local Historic District

For proper display of the polygon layers use the selection USERID not equal to 0. The SRHPPT point coverage also contains LATITUDE and LONGITUDE location items.

MAINTENANCE

These layers are up-to-date through 1997. New listings are added to the SRHP on a weekly basis. It is expected that updated versions of the SRHP GIS datalayers will be released on a yearly basis at about the same time as the annual re-publication of the SRHP each January. More information on the MHC may be found at http://www.state.ma.us/sec/mhc/. Questions on these GIS data may be directed to Michael Steinitz at the MHC at (617) 727-8470.

Landmarks Datalayer
March 1996

OVERVIEW

MassGIS has derived a coverage of point landmarks from the 1990 U.S. Census TIGER Line files database. The datalayer, named **LANDMARK** and stored in the STATE library, contains the locations of schools, campgrounds, hospitals, etc. Point attributes were created from TIGER Type7 files.

ATTRIBUTES

The **LANDMARK.PAT** (point attribute table) contains these items:

RT	Record type
VERSION	Version number
STATE	FIPS State code
COUNTY	FIPS County code
LAND	
SOURCE	Data source code (see list below for details)
CFCC	Census feature class code (see list below for details)
LANAME	Landmark name
LONG	Longitude
LAT	Latitude

Census feature class codes:

D00 - Unclassified landmark feature
D24 - Marina
D28 - Campground
D31 - Hospital
D36 - Jail or detention center
D37 - Federal penitentiary or state prison or prison farm
D42 - Convent or monastery
D43 - Educational institution
D44 - Religious institution
D51 - Airport or airfield
D52 - Train station
D53 - Bus terminal
D54 - Marine terminal
D63 - Office building or office park
D65 - Government center
D71 - Lookout tower
D81 - Golf course
D82 - Cemetery
D85 - State or local park or forest

Source codes:

D - Census Bureau Precensus Update
E - Census Bureau Enumerator Update
F - Census Bureau - Other operations
G - Unconfirmed local official updates

MAINTENANCE

MassGIS is maintaining this layer.

Natural Heritage & Endangered Species Program Priority Habitats of Rare Species Datalayer

June 1999

OVERVIEW

The Priority Habitats of Rare Species (PHAB) datalayer consists of polygons that represent estimations of important state-listed rare species habitats in Massachusetts. These habitats are based on rare species population records maintained in the Natural Heritage & Endangered Species Program (NHESP) database. The polygons are spatially represented at 1:25000 or 1:24000 on the Program's series of USGS topographic maps. Program scientists draw approximate habitats by analyzing population records, species habitat requirements, and available information about the landscape (particularly from topographic maps and aerial photographs). Most habitat sites are not visited prior to the drawing of these habitats.

These polygons are NOT equivalent to “significant habitat" as may be designated according to the regulations of the Massachusetts Endangered Species Act (MESA). Priority habitats are not protected under the Massachusetts Endangered Species Act, but the rare species that use the habitats are protected by that law.

This datalayer is stored as a single statewide coverage named **PHAB9901**.

PRODUCTION

This datalayer was digitized by NHESP. The information was compiled on paper topographic quadrangles at 1:25,000 scale and was digitized from that medium. Check plots were produced at 1:60,000; all habitats were checked for coding and locational accuracy.

ATTRIBUTES

This datalayer has a polygon attribute named PHAB-LBL. The value of this item is unique for each polygon and may be used as an identifier for the polygon.

MAINTENANCE

Occurrence records from the NHESP database are continuously being added, modified and deleted. Those changes will be incorporated into the Priority Sites of Rare Species Habitats datalayer every two years. A new version of this datalayer is produced every two years, and the latest update was completed in the fall of 1999.

AVAILABILITY

The Priority Sites datalayer does not come with the MassGIS dataset by default. It may be made available to EOEA agencies and EOEA cooperators for certain projects by special request. Please contact MassGIS for access to the Priority Habitats datalayer. The name and phone number of all individuals receiving the Priority Habitats datalayer will be forwarded to NHESP. The legend that MUST accompany this datalayer on ALL maps is:

"**NHESP 1999-2001 Priority Habitats for State-Protected Rare Species: NOT equivalent to 'Significant Habitat' as designated under Massachusetts Endangered Species Act**"

Questions about the Prioirty Sites datalayer should be directed to NHESP at 508-792-7270 x161.

Natural Heritage & Endangered Species Program Estimated Habitats of Rare Wildlife Datalayer

June 1999

OVERVIEW

The Estimated Habitats of Rare Wildlife (WHAB) datalayer consists of polygons representing estimations of the habitats of state-protected rare wildlife populations that occur in Resource Areas*. These habitats are based on rare species records maintained in the Natural Heritage & Endangered Species Program's (NHESP) database. Estimated population locations are spatially represented at 1:25,000 or 1:24,000 scale on NHESP's series of USGS topographic maps. NHESP scientists draw estimated habitats by analyzing population records, species habitat requirements, available information about the landscape (particularly from topographic maps and wetland inventory maps), as well as personal observations. Most habitat sites are not visited prior to the drawing of these estimated habitats. Estimated habitats are not equivalent to Resource Area delineation. These estimated habitats are designed for use with the Wetlands Protection Act Regulations (310 CMR 10.00). Projects that are subject to the Wetlands Protection Act and that fall within Estimated Habitats of Rare Wildlife require the filing of a Notice of Intent form with NHESP.

* The definition of "Resource Area" (Area Subject to Regulation) is included in the Wetlands Protection Act Regulations (310 CMR 10.02(1)).

This datalayer is stored as a single statewide coverage name **WHAB9901**.

PRODUCTION

This datalayer was digitized by NHESP. The information was compiled on and digitized from USGS 7.5 x 7.5 minute quadrangle, topographic maps at 1:25,000 and 1:24,000 scales. Polygons are checked for locational accuracy.

ATTRIBUTES

This datalayer has a polygon attribute named MAP-LBL. The value of this item for each polygon is unique; it may be used as an identifier for the polygon.

MAINTENANCE

Occurrence records from the NHESP's database are continuously being added, modified and deleted. Those changes are incorporated into this datalayer every two years. Habitats drawn for rare wildlife occurrences that have not been reverified within the last twenty-five years are deleted. A new version of this datalayer is produced every two years, and the next update is scheduled to be complete in the fall of 1999.

AVAILABILITY

The Estimated Habitats of Rare Wildlife datalayer does not come with the MassGIS dataset by default. It may be made available to EOEA agencies and EOEA cooperators for certain projects by special request. Please contact MassGIS for access to the Estimated Habitats datalayer. The name and phone number of all individuals receiving the Estimated Habitats datalayer will be forwarded to NHESP. The legend that MUST accompany this datalayer on ALL maps is:

"**NHESP 1999-2001 Estimated Habitats of Rare Wildlife:**
For Use with the MA Wetlands Protection Act regulations (310 CMR 10)."

Estimated Habitat maps are available for viewing at local Massachusetts conservation commission offices (by town) or in the current Natural Heritage Atlas (by quadrangle map). Questions about this datalayer should be directed to NHESP at 508-792-7270 x161.

Natural Heritage & Endangered Species Program Certified Vernal Pools Datalayer
June 1999

OVERVIEW

This datalayer contains points for all vernal pools which have been certified by the Natural Heritage & Endangered Species Program (NHESP) according to the Guidelines for Certification of Vernal Pool Habitat (5/88, MA Division of Fisheries & Wildlife). The 1999-2001 version of the datalayer shows all pools that were certified as of June 30, 1999. Vernal pools are small, shallow ponds characterized by lack of fish and by periods of dryness. Vernal pool habitat is extremely important to a variety of wildlife species including some amphibians that breed exclusively in vernal pools, and other organisms such as fairy shrimp which spend their entire life cycles confined to vernal pool habitat. Many additional wildlife species utilize vernal pools for breeding, feeding and other important functions. Certified vernal pools are protected if they fall under the jurisdiction of the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00). Certified vernal pools are also afforded protection under the state Water Quality Certification regulations (401 Program), the state Title 5 regulations, and the Forest Cutting Practices Act regulations. However, the certification of a pool only establishes that it functions biologically as a vernal pool. Certification does not determine that the pool is within a resource area protected by the Wetlands Protection Act. The Certified Vernal Pools layer is stored as a single coverage named **CVP9901**.

PRODUCTION

The certified vernal pool data is mapped on 1:24,000 or 1:25,000 USGS topographic quadrangle maps. The datalayer was created by NHESP by generating a coverage from a database of latitude and longitude points, as those were read from the USGS quads.

ATTRIBUTES

This datalayer has no attributes other than those normally created in an INFO point attribute table.

MAINTENANCE

Occurrence records from the NHESP's database are continuously being added, modified and deleted. Those changes are incorporated into the Certified Vernal Pools datalayer every two years. A new version of this datalayer is produced every two years, and the latest update was completed in the fall of 1999.

AVAILABILITY

The Certified Vernal Pools datalayer does not come with the MassGIS dataset by default. It may be made available to EOEA agencies and EOEA cooperators for certain projects by special request. Please contact MassGIS for access to the Certified Vernal Pools datalayer. The name and phone number of all individuals receiving the Certified Vernal Pools datalayer will be forwarded to NHESP. The legend that MUST accompany this datalayer on ALL maps is:

"**NHESP 1999-2001 Certified Vernal Pools**"

Questions about this datalayer should be directed to NHESP at 508-792-7270 x161.

Natural Heritage & Endangered Species Program Potential Vernal Pools Datalayer
December 2000

OVERVIEW

This datalayer identifies the locations of more than 29,000 potential, unverified, vernal pool habitats. Vernal pools are small, shallow ponds characterized by a lack of fish and annual or semi-annual periods of dryness. Vernal pool habitats are extremely important to a variety of wildlife species, including some amphibians that breed exclusively in vernal pools, and other organisms such as fairy shrimp which spend their entire life cycles confined to such locales.

Potential vernal pools visible on aerial photographs were interpreted and included in this layer. However, this datalayer does not include every vernal pool in Massachusetts. Many vernal pools have not been identified due to unfavorable conditions in the landscape topography, pool physiography and/or photograph quality. Furthermore, vernal pool habitats occur in a wide variety of landscape settings, including forested swamps, bogs, and other wetlands. Vernal pools within these settings were not typically interpreted, but are nonetheless legitimate and valuable vernal pools. Also, field verification of all potential vernal pools in this study will identify errors such as the inclusion of features that are not actually vernal pools.

Potential vernal pools identified in this survey are not to be confused with Certified Vernal Pools. Data pursuant to the official "Guidelines for the Certification of Vernal Pool Habitat" must be collected in the field and presented to the Massachusetts Natural Heritage & Endangered Species Program to obtain official certification for a vernal pool. Potential vernal pools identified in this survey do not receive protection under the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00), or under any other state or federal wetlands protection laws.

This single statewide layer is stored in the State library; its coverage and layer name is **PVP**.

PRODUCTION

NHESP staff identified potential vernal pools from 1:12,000 scale, color infrared (CIR), leaf-off aerial photographs flown between late March and Early May. Statewide coverage included photos taken in 1993 (Bristol, Barnstable, Nantucket and Dukes Counties), 1999 (Plymouth, northern and southern Worcester, and eastern Franklin, Hampshire and Hampden Counties), and 2000 (Essex, Middlesex, Suffolk, Norfolk, central Worcester, western Franklin, Hampshire and Hampden, and Berkshire Counties). Using stereo pairs under a mirror stereoscope, the approximate centers of pools were located. These points were digitized in a heads-up manner onto the MassGIS black and white digital orthophotos at a scale of approximately 1:12,000.

ATTRIBUTES

The **PVP.PAT** (point attribute table) contains the following items:

TOWN_ID	3	3	I	Town ID
TOWN	21	21	C	Town Name
PVP_NUMBER	8	8	I	Unique PVP ID number

AVAILABILITY

This datalayer may be made available to EOEA agencies and EOEA cooperators for certain projects. The legend that MUST accompany this datalayer on all maps is:

"NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools"

Questions about this datalayer should be directed to NHESP at 508-792-7270 x307.

DEP Solid Waste Facilities Datalayer
December 1997

OVERVIEW

The Solid Waste Facility Datalayer was compiled by the Department of Environmental Protection (DEP) to track the locations of landfills, transfer stations, and combustion facilities. The statewide datalayer contains the majority of the facilities currently regulated under DEP's solid waste regulations (310 CMR 16.00 & 19.00). The 629 polygons in the datalayer include thirteen specific types of solid waste facilities (see ATTRIBUTES below) and are stored as a statewide polygon coverage, **SW**.

Please note although the majority of the polygons represent landfills, only a small fraction of those landfills are active. In addition, this datalayer does not contain all solid waste facilities known to DEP. The MassGIS land-use datalayer has waste site and mining classifications that may represent landfills not in the solid waste datalayer.

MANUSCRIPT

The solid waste datalayer was originally digitized from USGS Quadrangle maps (1:25,000) filed as part of the operating permit (310 CMR 19.00) or siting (310 CMR 16.00) requirements for landfills. It has been updated as described below.

METHODOLOGY

1994 and earlier: DEP regional office files were searched for quadrangle locus maps which designated the location of solid waste facilities. In some cases the footprint of the facility was located on the map, in other instances a general location was marked on the map. These were hand-drawn onto a master set of quadrangle maps from which the datalayer was digitized. When possible, point locations were updated with polygons from MassGIS's 1985 land use data. Point locations were buffered to reflect the reported acreage (when insuffucient data was available, 29.7 acres was used).

1997 and beyond: Locus maps from regional and Boston office files were automated directly into Arc\Info while using scanned USGS quads as a background image. Point locations were buffered as described above; several of these point locations were collected using global positioning systems technology (GPS). One polygon was copied from the Protected and Recreational Open Space Datalayer.

The Department of Environmental Protection will continue its program of field checking existing facilities using GPS. 1:5,000 orthophoto basemaps will also be used for site verification. DEP plans to use GPS during site inspections to further enhance the quality of the datalayer.

ATTRIBUTES

The datalayer structure has been updated. Attributes associated with each polygon include:

ACRES	Facility Area in Acres
DIG-METHOD	Data Input Method
REGION	DEP Administrative Region
LNK	Link to SW.IDS

A related table **SW.IDS** contains the one or many Facility Identification Numbers that may be associated with a given polygon. Facility IDs are assigned according to Facility Type (two-character abbreviation), Town (digits preceeding decimal), and a unique identifier (digits following decimal). The relate item LNK is a concatenation of the town-id and a character representing the unique identifier (001 = A, 002 = B, etc).

Items found in **SW.IDS**:

REGION	DEP Administrative Region

LNK	Link to SW.PAT
FAC-ID	Facility Identification Number
TYPE	1 = Landfill, 2 = Combustion Facility, 0 = Other (CO, EP, IL, RE, TI, TR)

Types of Facilities (SW.TYPE-FREQ):

AL -Ash landfill; takes or has taken only ash.
CO - Compost site; a registered yard waste composting site.
DL - Demolition landfill; takes or has taken only construction & demolition (C&D) waste and may take wood waste.
EP - Epic (Unconfirmed) Site; identified by aerial photos taken around 1972-74 by Water Supply as possible solid waste sites, or a site with minimum data to support its existence. When a site is verified, its type is changed to a more specific site type.
IL - Illegal; solid waste facility that requires site assignment by the local Board of Health but has not obtained it and continues to operate. Most commonly refers to illegal transfer station operations.
MI - Municipal incinerator; burns MSW (Municipal Solid Waste) without energy recovery.
RE - Recycling facility; materials recovery facility or other recycling operation that does not require site assignment. RE does not include Recycling Drop-off Centers.
RR - Resource Recovery Facility; burns MSW with mass burn or refuse derived fuel technology with energy recovery.
SL - MSW landfill; may take or have taken MSW, in addition may take or have taken wood waste, C&D, sludge, ash or other solid waste. SL includes historic open or burning dumps used to dispose of MSW.
SG - Sludge landfill; takes or has taken sludge from water supply or waste water treatment only. These landfills are primarily tracked and regulated by DEP Division of Water Pollution Control.
SD - Stump landfill or wood reclamation facility; takes or has taken only clean wood waste.
TI - Tire pile
TR - Transfer station; any facility that handles, but does not dispose of solid waste and requires site assignment.

e.g.
LNK=004ABDDEQE-ID=SL0004.001TYPE=1
- A sanitary landfill in Adams (TOWN-ID 4), the first registered facility in the town.
LNK=004ABDDEQE-ID =TR0004.002TYPE=0
- A transfer station in Adams (TOWN-ID 4), the second registered facility in the town.
LNK=004CDEQE-ID=SG0004.003TYPE=1
- A sludge landfill in Adams (TOWN-ID 4), the third registered facility in the town.
LNK=004ABDDEQE-ID=CO0004.004TYPE=0
- A compost site in Adams (TOWN-ID 4), the fourth registered facility in the town

Note: SL0004.001, TR0004.002 and CO0004.004 are represented by the same polygon (LNK = 004ABD). SL0004.001 and SG0004.003 are both landfills (TYPE = 1), located at different polygons (LNK = 004ABD and 004C).

DEP maintains the Solid Waste Facility Database which tracks the liner and operational status, facility type, capacity, owner and operator contact information, and years of operation of solid waste facilities. A subset of this database is found within the SW datalayer (**SW.DB**). Facility information is linked to the GIS datalayer via the Facility ID number. The Facilities database is available through DEP's Bulletin Board: (617) 292-5546; 14400 Baud, 8 data, 1 stop, no parity; or the World Wide Web: http://www.magnet.state.ma.us/dep/bwp/dswm/swlist.htm.

The methods of data input are coded as follows in **DIG-METHOD** (**SW.DIG-FREQ**):

DIG-METHOD	Description	Number of Polygons
F	Footprint digitized from USGS quadrangle	384
P	Point digitized from USGS quadrangle	153
UTM	Point located by UTM coordinates	76
GPS	Perimeter points collected with GPS	9
LU	Polygon copied from MassGIS Land Use Datalayer	5
OS	Polygon copied from MassGIS Protected and Recreational Open Space Datalayer	1

MAINTENANCE

The DEP Bureau of Waste Prevention is maintaining this datalayer.

Underground Storage Tank Locations Datalayer
March 1997

OVERVIEW

The Underground Storage Tank Locations datalayer **(UST)** was compiled by the U.S. Environmental Protection Agency through a contract with Camp, Dresser and McKee Federal Systems, Inc. (CDM). Tabular information on tank sites was obtained from the Massachusetts Department of Public Safety's Division of Fire Protection Tanks database. Address information was extracted from the provided ASCII files and coordinates were acquired using a combination of address matching and field survey work using Global Positioning System receivers. Additional tabular information was extracted from this file by the MA Department of Environmental Protection (MA DEP). From this file of 10607 sites, 7995 were located by CDM. In 1996, the Barnstable County Department of Health and Environment (BCHED) field-visited sites in Barnstable County. The BCHED located 309 sites, of which 153 were new and 156 were previously located by address matching. PLEASE NOTE THAT FUNDING RESTRICTIONS PREVENTED ALL OF THESE SITES FROM BEING LOCATED AND INCLUDED IN THE DATALAYER. If you can provide the locations of missing sites, send a map manuscript showing the site and its USTID to MassGIS at the address on the front cover of this guide. This coverage, **UST**, is stored as a single coverage in the **STATE** library.

METHODOLOGY

A report image file was provided to CDM from the MA Department of Public Safety (DPS) on diskette(s). The site address and USTID information were extracted from this file, and duplicate records were removed. During the early part of the collection effort, fire chiefs from municipalities throughout Massachusetts were contacted and provided information for 276 new tank sites. The address matching software MATCHMAKER/GDT from Geographic Data Technologies Corp. was used to spatially locate the sites using address data from the U.S. Bureau of the Census TIGER/LINE files. Sites that were not located by this method were located using Global Positioning System survey equipment from Trimble Equipment Corp; these point locations were then provided to MA DEP GIS staff. Specific information concerning the tanks and contents at each location were then extracted from the DPS image file and loaded into a tabular database file. The content information was edited to minimize the types of products and a general category item was added. Information about total content at each site was also generated, and is a part of the coverage.

ATTRIBUTES

The datalayer has a .PAT (point attribute file) associated with each location:

USTID	The DPS Site Identification Number
METHOD	The method by which the point was mapped: ADDRESS, address matched; GPS or GPS-EPA located by GPS; GPS-BCHED located by BCHED
FACIL-NAME	The name of the facility
STREET-NUM	The street number portion of the address
STREET	The street name or intersection
TOWN	The municipality in which the UST is located
STATE	The state in which the UST is located
ZIP	The Postal Service Zip Code
QC	The QC field was created to place flags that may be of use to future researchers. The codes include:
DUPLICATE1	For two or more records in the original data file, the site name is the same or nearly the same, and the address is the same
DUPLICATE2	For two or more records in the original data file, the site name is different but the address is the same
REMOVED	The municipality responded that the tanks have been removed
REMOVING	The municipality responded that the tanks are being removed
FILLED	The municipality responded that the tanks have been filled
ADDED	The record was added by the municipality
INACTIVE	The municipality reported that the tanks are no longer in use
NO RECORD	The municipality reported no record of a UST at this site

Several data files were created from the DPS site information file. These files are all related to the coverage .PAT file by the USTID field:

UST.SITE-LIST, a list of site specific information. Attributes include:

USTID	The DPS UST identification number
COUNTY	The Massachusetts county the site is located in
NAME	The owner or operator's name
ADDRESS	The street address
CITY	The city or town the site is located in
ZIP	The Postal Service Zip Code
MANAGER	The site manager
PHONE	The phone number at the site

UST.ACTIVE, or UST.REMOVED, lists of active and removed tank information by site. Attributes include:

USTID	The DPS UST identification number
TANKID	Tank number by site
STATUS	The status of the tank, i.e. "Curr, temp, Perm, Remv"
PRODUCT	The contents of the tank, i.e. "#2 Diesel Fuel, Toluene"
CATEGORY	A more general product description, added to aid summary by sites. Only exists in UST.ACTIVE. Current codes included are: CHEMICAL, DIESEL, FUEL OIL, GAS(eous), GASOLINE, GLYCOL, HAZARDOUS, KEROSENE, LUBRICANT, MIXTURE, NONE, SOLID, UNKNOWN, WATER
CAPACITY	Tank capacity in gallons
AGE	Tank age in years, updated to 9/94
YEAR-INSTALLED	Year the tank was installed
MATERIAL	Tank construction material, i.e. "Fiberglass"
PIPING-MAT	Connecting pipe construction material, i.e. "Bare Steel"
PIPING-TYPE	Connecting pipe type. i.e. "Gravity Fed"

Additional files were generated using a frequency filter for site specific totals of material stored to aid in map generation:

UST.SITE-PRODUCTS, a summary file for each site by type of product. Attributes include:

CASE#	A sequential record number
FREQUENCY	Count of each product type
USTID	The DPS UST identification number
PRODUCTS	Tank contents
GALLONS	Total gallons at site by product

UST.SITE-CATEGORY, a summary file for each site by content category. Attributes include:

CASE#	A sequential record number
FREQUENCY	Count of each product type
USTID	The DPS UST identification number
CATEGORY	Tank contents category
GALLONS	Total gallons at site by product

The original table from the Barnstable County Department of Health & Environment is attached to the coverage as UST.BCHED. Please contact the Department for information pertaining to the fields.

MAINTENANCE

The MA Department of Environmental Protection, GIS Group, is maintaining this datalayer. Any updates sent to MassGIS will be forwarded to DEP and incorporated into this datalayer. Please reference the USTID when informing us of new or corrected data.

DEP Wellhead Protection Area (Zone II, IWPA, IWPACOM) Datalayers
March 2001

OVERVIEW

Wellhead protection areas are important for protecting the recharge area around public water supply (PWS) wells. A Zone II is a wellhead protection area that has been determined by hydrogeologic modeling and approved by the Department of Environmental Protection's (DEP) Drinking Water Program (DWP). In cases where hydro-geologic modeling studies have not been performed and there is no approved Zone II, an Interim Wellhead Protection Area (IWPA) is established based on DEP DWP well pumping rates or default values. Certain land uses may be either prohibited or restricted in both approved (Zone II) and interim (IWPA) wellhead protection areas.

Approved Wellhead Protection Areas (Zone II)

The statewide **ZONE_IIS** datalayer contains DEP Approved Wellhead Protection Areas (Zone II). As stated in 310 CMR 22.02, a Zone II is:

> "That area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at safe yield, with no recharge from precipitation). It is bounded by the groundwater divides that result from pumping the well and by the contact of the aquifer with less permeable materials such as till or bedrock. In some cases, streams or lakes may act as recharge boundaries. In all cases, Zone IIs shall extend up gradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide, a contact with till or bedorck , or a recharge boundary)."

DEP Zone II and PWS data are closely linked, and DEP Zone II data should be used in association with the DEP Public Water Supply datalayer (PWS_DEP). During the approval process each Zone II is assigned a unique ID (ZII-NUM) by DEP DWP. The DEP Public Water Supply and Zone II datalayers use the ZII-NUM to link protected PWS sources to their approved Zone II. Since some PWS sources within a Zone II may not have been used to delineate that Zone II, the ZII-NUM item can be used to identify the specific wells for which a Zone II was delineated. If the DEP Public Water Supply datalayer item ZII-NUM is equal to 0 than that PWS source has no Zone II and should therefore have an Interim Wellhead Protection Area (IWPA).

Zone II MANUSCRIPTS

Zone II delineation maps, based on USGS (1:25,000) topographic quadrangles, are submitted to the DEP DWP as a requirement for Zone II approval and are considered to be the Department's "official" Zone II maps. Traditionally consultants submitted these maps in hardcopy/analog format. Since 1999, Zone II data developed under DEP's Source Water Assessment Program (SWAP) is submitted by the consultant in a digital (ESRI shapefile) format. It is strongly recommended that if Zone IIs are to be used in site level analysis, the original hardcopy manuscript documents, located at DEP's Boston Office, be referred to for evaluation of any critical, site specific information. Please refer to the section below on data maintenance for DEP DWP contact information.

Zone II METHODOLOGY

Historically the "official" Zone II paper maps were used to recompile Zone II boundaries into the DEP Water Supply Protection Atlas, which consisted of stable mylar overlays based on the USGS 7.5 minute (1:25,000) topographic quadrangles. Prior to January 1996 Zone IIs were automated using the following methodology. After the technical reports were reviewed for completeness, the Zone II boundaries were transferred to a USGS-based stable mylary overlay. The Zone IIs were

then inked onto the Water Sources overlay using a size 0 (.35 mm) pen and tablet digitized by GIS Program staff.

As of January 1996 the automation steps of recompiling the Zone II boundary onto the DEP Water Supply Protection Atlas Water Source overlay and tablet digitizing have been abandoned. Zone II boundaries are currently generated by one of the following methodologies:

- After the technical reports are reviewed for completeness and approved by DEP DWP technical services staff the DEP GIS Program is provided an analog copy of the "official" Zone II map. The Zone II map is scanned into a .tif image and then converted to an ESRI GRID image. Using the GRID as a background feature a minimum of four (4) tics are added to an empty Zone II template coverage. Rasterized Zone II data is converted to vector format by tracing the Zone II boundary on the underlying GRID. The vectorized Zone II boundaries are transformed into NAD83 Massachusetts state plane meter coordinates. New Zone IIs are appended to the statewide Zone II datalayer and regionalized.

- After the technical reports are reviewed for completeness and approved by DEP DWP technical services staff the DEP GIS Program is provided a digital copy of the "official" Zone II boundary generated by the consultant. New Zone IIs are appended to the statewide Zone II datalayer and regionalized.

Zone II ATTRIBUTES

Regional Topology Data Model:

Because wells tend to be clustered by the nature of the resource they tap, the Zone IIs protecting those wells will frequently overlap. As a result of this overlap, intersecting Zone IIs are composed of multiple polygons and more than one Zone II can share an individual polygon. The regions data model represents complex area features and supports overlapping or non-contiguous areas. The Zone II data layer uses the regions feature class and topological structure to manage polygonal overlap, by combining all the polygons a Zone II comprises into a single region feature subclass (**ZONE2**).

With regions based topology, an individual Zone II can be selected by using the item **ZII-NUM** in the region subclass **ZONE2** attribute table. The **ZII-NUM** is assigned by DEP DWP. The **ZII-NUM** item is also maintained in the .PAT of the DEP Public Water Supply datalayer, and can be used to identify the specific wells for which a Zone II has been delineated.

Region Attributes:

The **ZONE_IIS** datalayer contains regional topology and subclass **ZONE2** and region attribute table (.PATZONE2) with the items:

ZONE2-ID	ID of the region
ZII-NUM	The unique number assigned by DEP DWS to identify each Zone
AREA-ACRES	The area of the Zone II in acres

Polygon Attributes:

The **ZONE_IIS** datalayer has polygon topology and polygon attribute table (.PAT) with the following items:

AREA-ACRES	Area of the polygon in acres
ZONE	Zone type (2 = Zone II, 3 = Zone III Inlyer)

Arc Attributes: The **ZONE_IIS** datalayer has line topology and an arc attribute table (.AAT) with the following items:

ZONE_IIS-ID	ID of the arc of the Zone II calculated to the value of ZII-NUM
ZII-NUM	The unique number assigned by DEP DWS to identify each Zone II

Interim Wellhead Protection Areas (IWPA, IWPACOM)

In the absence of an approved Zone II, DEP has adopted the Interim Wellhead Protection Area (IWPA) as the primary, protected recharge area for PWS groundwater sources. For PWS sources that pump less than 100,000 gallons per day (GPD), the IWPA radius is proportional to the pumping rate in gallons per minute (GPM). Pumping rate is determined by DEP DWP based on one of the following methods, DWP approved pumping rate, metered data or Title 5 flow rate. The formula used for calculating the PWS well point buffer radius in feet is:

Radius = (32 x pumping rate in GPM) + 400

The minimum IWPA radius is 400 feet, the maximum (default) radius reached at 100,000 GPD (70 GPM) is 2,640 feet (1/2 mile). In instances where DWP pumping rate information is unavailable DWP approved default radius values are assigned based on PWS well classification. The default radius for community class PWS groundwater sources (GW) is 2,640 feet (804.6 meters). The default radius for non-community sources is 750 feet (228.6 meters) for Non Transient (NTNC) wells and 500 feet (152.4 meters) for Transient (TNC) wells.

The DEP GIS Program currently maintains two statewide IWPA coverages (**IWPA** and **IWPACOM**) shared through MassGIS. Both are generated by buffering groundwater sources in the DEP Public Water Supply datalayer (PWS_DEP). The **IWPA** coverage contains variable width IWPA buffers for BOTH approved community and non community groundwater sources in the DEP PWS datalayer which do not have an approved Zone II. The **IWPACOM** coverage contains IWPAs ONLY for community PWS sources which do not have an approved Zone II.

IWPA, IWPACOM METHODOLOGY

The DEP Interim Wellhead Protection Area (**IWPA** and **IWPACOM**) datalayers are simple polygon coverages generated with the Arc/INFO buffer command, based on PWS well point locations in the DEP Public Water Supply datalayer. DEP GIS-based IWPA buffer radius values are determined from the best available digital pumping rate information, as provided to the GIS Program from DWP.

IWPA, IWPACOM ATTRIBUTES

Polygon Attributes:

The **IWPA** and **IWPACOM** datalayers have polygon topology and a polygon attribute table (.PAT) with the standard buffer item:

INSIDE	Arc/INFO generated buffer item (0 or 1 = Not within IWPA, 100 = Within IWPA)

MAINTENANCE

The Zone II and IWPA data layers are maintained by the DEP GIS Program, in cooperation with DWP's Technical Services group. The DEP GIS Program updates Zone II and IWPA data on a quarterly basis (Dec, Mar, June and Sept.) in conjunction with updates to the DEP Public Water Supply datalayer and in accordance with the DWPs PWS new source approval schedule. Besides adding new Zone II and IWPA areas, updates may include modifying existing areas and removing superseded Zone IIs. Updated datalayers are then shared through MassGIS.

General and technical questions regarding DEP approved (Zone II) and interim (IWPA) well head protection areas should be referred to the DWP Technical Services Group (617) 556-1055. GIS-related questions concerning Zone II and IWPA or other DEP water supply-related data can be referred to the DEP GIS Program (617) 574-6856.

Surface Water Supply Protection Areas (Zone A, B, C) Datalayer
March 2001

OVERVIEW

These three datalayers (ZONEA, ZONEB, ZONEC) delineate those areas included in 310 CMR 22.00, the Massachusetts Drinking Water Regulations, as Surface Water Supply Protection Zones:

ZONE A: represents a) the land area between the surface water source and the upper boundary of the bank; b) the land area within a 400 foot lateral distance from the upper boundary of the bank of a Class A surface water source, as defined in 314 CMR 4.05(3)(a); and c) the land area within a 200 foot lateral distance from the upper boundary of the bank of a tributary or associated surface water body.

ZONE B: represents the land area within one-half mile of the upper boundary of the bank of a Class A surface water source, as defined in 314 CMR 4.05(3)(a), or edge of watershed, whichever is less. Zone B always includes the land area within a 400 ft lateral distance from the upper boundary of the bank of the Class A surface water source.

ZONE C: represents the land area not designated as Zone A or B within the watershed of a Class A surface water source, as defined in 314 CMR 4.05(3)(a).

All known surface water supplies have zones delineated, but some may be covered by other legislation. Areas with a status value of M are included for reference but are not covered by 310 CMR 22.00. Each area is delineated in a separate statewide datalayer, ZONEA, ZONEB, and ZONEC.

METHODOLOGY

Those areas that contribute to public surface water supplies were taken from the Drainage Sub Basins datalayer and overlaid with the 1:25,000 Hydrography datalayer to identify reservoirs and tributary streams. The reservoirs were extracted and buffered to produce Zone B's, reservoirs and tributaries were extracted and buffered to produce Zone A's, and sub basins were extracted to create Zone C's.

ATTRIBUTES

Individual polygons were generated for each surface water source for each zone designation, but since some sources lie within the watershed of another source, the regions feature class was used to create collections of polygons for each surface water source. Each coverage uses the region feature class and topological structure to manage overlap, combining all the polygons composing each source's protection zones into a single region feature class (**PWS**). Protection zones for each source can be selected by using the item **SOURCE-ID** in the region subclass **PWS** attribute table.

REGION Attributes: Each protection zone coverage contains the region subclass **PWS** and the attribute table **ZONE(ABC).PATPWS**.

The items common to each attribute table are:

SOURCE-ID	Surface water supply source-id from the public water supply datalayer
REG_OBJ_ID	Regulated Object ID from the DEP EPICS Database
STATUS	Current operational status: A – Active, E - Emergency, I – Inactive, M – MWRA source
AREA-ACRES	Area of the Zone (ABC) in acres
RESERVOIR-AREA	Area of the reservoir (if impoundment exists) in acres (see Hydrography 1:25000 Datalayer)

In addition the **ZONEB** region subclass attribute table **ZONEB.PATPWS** contains:

ZONEA-AREA	Area of the Zone A in acres WITHIN the Zone B area

In addition the **ZONEC** region subclass attribute table **ZONEC.PATPWS** contains:

ZONEA-AREA	Area of the Zone A in acres
ZONEB-AREA	Area of the Zone B in acres

Polygon attributes: The Zone C datalayer was extracted from the Drainage Sub Basins Datalayer and contains the same attributes.

MAINTENANCE

The Massachusetts Department of Environmental Protection (DEP) GIS Program is maintaining this datalayer. Any updates sent to MassGIS will be forwarded to DEP and incorporated into this data layer. Please reference the town, water supplier id, water supply source id (if known), and major basin identifier when providing updates.

Title 5 Datalayer
August 2000

OVERVIEW

The Title 5 data layer is a buffer coverage representing a variable width buffer zone around water features and other natural resources. These buffer areas are established for the purpose of aiding in the implementation of Title 5 (310 CMR 15.00) regulations for the siting, construction, inspection, upgrade and expansion of on-site sewage treatment and disposal systems, and for the transport and disposal of sewage. The buffer areas represent the setback requirements for the installation of septic systems near specific natural resources and water features. Please refer to the Title 5 regulations for the specific setback requirements.

Title 5 data are tiled by quadrangle in library QUAD as layer **T5**; coverages are named **T5.**

PRODUCTION

The buffer areas were developed by buffering the hydrologic and wetland features contained in the MassGIS 1:25,000 hydrography data layer and wetland features contained in the MassGIS land use coverage. The buffer area is 50 feet around all hydrologic features and wetlands, except within the drainage basin for a public surface water supply, where the buffer zones are 100 feet around wetland features, 200 feet around streams and ponds, and 400 feet around public surface water supplies.

ATTRIBUTES

This datalayer has a polygon attribute table (.PAT) with the following items:

INSIDE	Indicates whether area is within the Title 5 buffer zone 100 = within buffered area 0 = outside buffered area
TILENAME	ID# of the Quad tile

TITLE 5 THEME MAP

A Title 5 Resource Area Map series is available through MassGIS. This map series is intended to be used by the public as a tool to aid in identifying areas near water resources and natural features that are subject to the Title 5 (310 CMR 15.00) regulations. The information shown on these maps comes from many different sources at different scales. Some data may be incomplete, some generalization may occur, and some information may not have been field verified.

MAINTENANCE

This datalayer was developed and is maintained by the Massachusetts Department of Environmental Protection (DEP). It is updated when new hydrography, land use and public water supply information is available.

DEP Tier Classified Oil or Hazardous Material Sites (MGL c. 21E) Datalayer
March 2001

OVERVIEW

The DEP Tier Classified Oil or Hazardous Material Sites datalayer is a statewide point dataset containing the *approximate* location of oil or hazardous material disposal sites that have been (1) reported and (2) Tier Classified under M.G.L. Chapter 21E and the Massachusetts Contingency Plan (MCP). Location types featured in this datalayer include the approximate center of a site, the center of a building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. For the purposes of this document, the terms "DEP Tier Classified oil and hazardous material disposal sites" and "Tier Classified Chapter 21E sites" are synonymous and are often referred to simply as "sites". This STATE library layer is named **C21E**; its coverage name is **BWSC_DEP**.

Releases of oil and hazardous materials are reported to the Department of Environmental Protection's (DEP) Bureau of Waste Site Cleanup (BWSC), according to procedures established in the MCP (310 CMR 40.0000). The sites mapped in this datalayer represent only a subset of the total reported Chapter 21E sites tracked by DEP BWSC. Chapter 21E sites that have not yet been Tier Classified are not contained in this datalayer.

Under Massachusetts' Waste Site Cleanup Program, which is a largely privatized program, Tier IA classified sites and Immediate Response Actions (IRAs) at any site receive direct DEP oversight. Data maintained by the DEP regarding site location are provided to the DEP by potentially responsible parties (PRPs) and by licensed site professionals (LSPs), who work for the PRPs. Location data is provided in a paper format (e.g., map and textual information) by PRPs and LSPs and maintained by DEP BWSC in individual site files. These site files are available to the public through the DEP's regional offices.

Springfield - http://www.state.ma.us/dep/wero/werohome.htm
Worcester - http://www.state.ma.us/dep/cero/cerohome.htm
Wilmington - http://www.state.ma.us/dep/nero/nerohome.htm
Lakeville - http://www.state.ma.us/dep/sero/serohome.htm

Anyone wishing to view Chapter 21E site files can make arrangements with the regional offices though a Freedom of Information request. The Department encourages persons to review these site files when they make decisions that consider a specific site. Most of the site locations included in the DEP Tier Classified Oil and Hazardous Material Sites datalayer are interpretations of data provided by PRPs and LSPS converted to a digital format by DEP staff. This data has not been field-verified. In some cases where file information was inadequate or unavailable, locations were provided by DEP technical staff through knowledge gained in the course of their professional activities.

THE STATE SUPERFUND LAW AND THE MASSACHUSETTS CONTINGENCY PLAN (MCP)

The rules requiring notification, assessment and remediation of releases of oil and hazardous materials are codified in the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000. Under the MCP and M.G.L. Chapter 21E, the PRPs are responsible for the timely assessment and cleanup of disposal sites in Massachusetts. The DEP BWSC is required to audit PRP response actions performed on 20% of the sites and when necessary provides direct agency oversight of cleanup efforts.

If permanent cleanup is not achieved for a disposal site within a year of being reported to the Department, the site must be classified as Tier I or II in accordance with the MCP's numerical

ranking system (NRS), outlined in 310 CMR 40.1500. The NRS is a point system based on a variety of factors, including the site's complexity, the type of contamination, and the potential for human or environmental exposure to the contamination. In addition, some sites are automatically given a Tier I classification if they pose an imminent hazard or affect public water supplies. A site's Tier Classification determines the level of DEP oversight. Tier I sites require a permit and Tier IA sites, considered to be the most complicated sites, require direct DEP BWSC oversight.

General and technical questions regarding Chapter 21E, the MCP and waste site cleanup in Massachusetts should be directed to the DEP BWSC Helpline at (617) 338-2255 or (800) 426-0444. Information on the Waste Site Clean-up Program is available online at http://www.state.ma.us/dep/bwsc/bwschome.htm.

DATA LIMITATIONS

Location data contained in this datalayer are based on DEP staff interpretation of information provided to the Department by PRPs and their LSPs. Point features in this datalayer should ONLY be considered as an "approximation" or "best estimate" of site locations based on the information submitted to the DEP BWSC. **The accuracy and completeness of the information submitted has not been verified by the DEP.**

There are other Chapter 21E sites in Massachusetts that are not contained in this datalayer. For example, this datalayer does not include (1) contaminated sites that have not been reported to the DEP or (2) sites for which a Response Action Outcome (RAO) has been submitted to the DEP. Furthermore, not all Tier Classified Chapter 21E sites have been located. Please refer to the Unlocated Sites List for a current list of unmapped Tier Classified Chapter 21E sites.

Tier Classified Chapter 21E site data are extremely temporal. Although the datalayer will be updated on a periodic basis, it will never be complete or up-to-date. Users should check BWSC site files (at the appropriate DEP Regional Office) for the most current information.

The DEP recognizes that point features are not the ideal spatial model for representing contaminated areas, especially in the case of large sites or if considerable contaminant migration has occurred. Due to the limitations of the information that PRPs and LSPs are currently required to submit to the DEP, the spatial representation of sites as point features is currently the only realistic method for generating Tier Classified Chapter 21E site data on a statewide scale.

Due to the limitations of this datalayer, the following disclaimer language will appear on DEP standard map products containing Tier Classified 21E site data:

> **Data Disclaimer:**
> Point locations representing Tier Classified Chapter 21E sites in this datalayer have not been field-verified and should be considered approximate. Locations were derived through review and interpretation of paper maps and textual information contained in DEP BWSC site files, which are maintained in DEP's Regional Offices. Generally, such information was submitted to DEP by potentially responsible parties (PRPs) and the PRPs' licensed site professionals (LSPs).
>
> Please be advised that this datalayer is incomplete. The DEP has been unable to locate some sites due to inadequate source material. Sites that are not yet reported or tier-classified are not mapped, nor are sites for which a Response Action Outcome (RAO) has been submitted to the DEP.
>
> Site contamination may extend well away from the point representing a site on this map. The DEP BWSC site files should be reviewed for the most accurate and up-to-date information about a particular site. While the Tier Classified Chapter 21E site data shown on this map provides some useful information, the user should be aware of the data's limitations. For further information, please see the datalayer description pages for the DEP Tier Classified Oil or Hazardous Material Sites (or online at

http://www.state.ma.us/mgis/c21e.htm on the MassGIS Web site).

Questions regarding Tier Classified Chapter 21E site data on this map should be referred to the DEP GIS Program (617) 574-6856. General and technical questions regarding Chapter 21E, the MCP and waste site cleanup in Massachusetts should be directed to the DEP BWSC (617) 338-2255 or (800) 426-0444.

DATA DEVELOPMENT

1. Source Materials

a. Data Universe

The DEP BWSC is responsible for providing the DEP GIS Program with a comprehensive listing of Tier Classified Chapter 21E sites, including street address information and unverified coordinate data. A "development coverage" was created from this data using address matched and coordinate generated data.

b. Source Manuscripts

Chapter 21E site files maintained by the DEP contain a variety of types and qualities of maps, including surveys, site plans and locus maps. DEP GIS Program staff reviewed this file information and identified the best manuscript maps and supplemental text information for locating sites. The attribute section of this document contains a listing of the types of source manuscripts utilized for this datalayer. In limited cases, textual manuscripts, contained in the site files, provided sufficient descriptive information for estimating site locations.

2. Automation Methodology

a. Point Development Tool

To facilitate conversion of paper data to a digital format, the DEP GIS Program created the Point Development Tool (PDT), a customized application using ESRI's ArcView software (the PDT application is available as an extension to the MassGIS DataViewer). The PDT provides a standardized platform that guides users through the automation and documentation of geographically referenced point data.

On-screen digitizing using the PDT and the best available manuscript map information was the primary method of automation. In situations where manuscript maps and other source information from the file record were inadequate or unavailable, DEP technical staff were asked to help locate the site based on knowledge gained in the course of their professional activities involving that site.

b. Basemap Scale

Using data in the "development coverage," the PDT navigates data developers to the general vicinity of a site. The PDT then displays the best digital base imagery available for that vicinity. The PDT uses MassGIS 1 meter (1:5,000) black and white digital orthophoto images (DOQ) as the default basemap. Where 1 meter 1:5,000 DOQs were not available, the PDT defaulted to 1 meter USGS (1:12,000) black and white digital orthophoto images or USGS (1:25,000) topographic quadrangle images respectively. When data development began, the only available digital basemap imagery for much of Massachusetts was the MassGIS scanned USGS (1:25,000) topographic images. Therefore, the base scale of this datalayer is considered to be 1:25,000.

After interpreting the source manuscripts, developers used the PDT to select a point on the base image that best represents the site location. The PDT guided the developer through the data documentation process, recording information about the type of source material, type of feature located, and an assessment of the locational accuracy of the mapped point.

ATTRIBUTES

1. Attribute Data Structure

The point attribute table (.pat) for the DEP Tier Classified Oil or Hazardous Material Sites datalayer contains the following items:

General Site Information Items:

ITEM	TYPE-WIDTH	DEFINITION
RTN	C – 9 / 9	BWSC Release Tracking Number (RTN), unique site ID
NAME	C – 50 / 50	Site name assigned by DEP BWSC describes the site in terms of its location, use or type.
ADDRESS	C – 30 / 30	Site address assigned by DEP BWSC
TOWN	C – 21 / 21	MassGIS town name
REGION	I – 1 / 1	MassGIS DEP Region code
STATUS	C – 18 / 18	Chapter 21E compliance status according to DEP BWSC
OHM_CODE	C – 18 / 18	Type of contamination according to DEP BWSC

Standard PDT Data Documentation Items:

ITEM	TYPE-WIDTH	DEFINITION
L_TYPE	C - 16 / 16	Location type
L_METHOD	C - 6 / 6	Location method
SOURCE	C – 30/30	Source material

2. Description of General Site Information Items

General site information attributes are populated using BWSC database information and represent the most up to date BWSC data, available to the DEP GIS Program, at the time of update.

a. RTN

The Release Tracking Number (RTN), is a unique 7-digit site identifier assigned to reportable releases by the BWSC. This number is preceded by either 1,2,3 or 4 (e.g. 3-0001234) according to the DEP region in which the site is located (see: description of DEP Region ID below).

b. NAME

The name assigned by BWSC that best describes the site location. The site name does NOT necessarily reflect the identity of any PRPs.

c. ADDRESS

The number and street that most accurately describes the site location; mile markers or similar highway designations may also be used.

d. TOWN

The standard MassGIS town name.

e. REGION

The DEP Region in which the site is located. This field uses the following numeric DEP Region codes:

DEP REGION CODE	DEP REGION – OFFICE LOCATION	ACRONYM
1	Western Region - Springfield	WERO
2	Central Region - Worcester	CERO
3	Northeast Region - Wilmington	NERO
4	Southeast Region – Lakeville	SERO

f. STATUS (Chapter 21E Tier Classification)

Chapter 21E Tier Classification is based on the requirements, standards and procedures set forth in 310 CMR 40.0500 or 40.0600 for classifying a site as either Tier I or Tier II and for categorizing Tier I disposal sites as Tier IA, Tier IB, default Tier 1B or Tier IC.

1.) MCP/Chapter 21E Tier Classification Definitions

TIER IA: Any site receiving a total NRS score equal to or greater than 550 is a Tier IA. Tier IA sites require a permit and any person undertaking response actions must do so under direct Departmental supervision.

TIER IB: Any site receiving a total NRS score of less than 550 and equal to or greater than 450 is a Tier IB. These sites also require a permit but any person undertaking response actions may do so without the Department's approval after a Tier I Permit is issued.

TIER IC: Any site receiving a total NRS score of less than 450 and equal to or greater than 350 is a Tier IC. In addition, any release / site receiving a total NRS score of less than 350 and that meets any of the Tier I Inclusionary Criteria specified in 310 CMR 40.0520(2)(a) shall also be classified as Tier IC. These sites also require a permit but any person undertaking response actions may do so without the Department's approval after a Tier I Permit is issued.

TIER 2: Any site receiving a total NRS score of less than 350 is a Tier 2, unless the release / site meets any of the Tier I Inclusionary Criteria specified in 310 CMR 40.0520(2). Permits are not required at Tier 2 sites and response action may be performed under the supervision of a Licensed Site Professional, without prior Departmental approval.

DEF TIER 1B: (Default Tier 1B) A site where the responsible party fails to provide a required submittal to DEP by a specified deadline. A site is categorically classified as a Default Tier 1B on the date of their applicable transition deadline and is assessed Tier 1B annual compliance fees should the responsible party fail to submit to the Department by the applicable deadline one of the following:

a) An LSP Evaluation Opinion stating the location is not a site where a release of oil and / or hazardous material has occurred which is subject to the notification requirements of 310 CMR 40.0300, and no further actions are required.

b) An LSP Evaluation Opinion stating that a release of oil and / or hazardous material subject to the notification requirements of 310 CMR 40.0300 has occurred or may have occurred at the location but response actions completed prior to the date of the LSP Evaluation Opinion meet the requirements of a Class A or Class B Response Action Outcome pursuant to 310 CMR 40.1000.

c) An LSP Evaluation Opinion stating that the release / site is a location that is adequately regulated pursuant to 310 CMR 40.0110.

d) A Response Action Outcome Statement pursuant to 310 CMR 40.1000.

e) A Tier Classification Submittal pursuant to 310 CMR 40.0700.

g. OHM_CODE

Contamination types are classified by BWSC as petroleum (oil), hazardous material, or oil and hazardous material. The following codes are used to indicate the type of contaminant released.

CODE	DEFINITION
O	Oil, includes gasoline, or other petroleum based material
HM	Hazardous material
OHM	Both oil (gasoline or other petroleum based material) and hazardous material

3. Description of Standard Data Documentation Items

a. L_TYPE

The location type (L_TYPE) field contains a spatial reference code, indicating what the point represents. Current location type codes include:

CODE	DEFINITION
CA	Approximate center of site investigation activity
CB	Approximate center of on-site building footprint as shown on base image
CB2	Approximate center of a building footprint, NOT positive on site.
CL	Approximate center of property lot associated with site address
CS	Approximate center of site or area of known contamination
CT	Approximate center of individual tank or cluster of tanks (UST or AST)
FD	Front Door, +/- 100-ft from entrance to site
MW	Approximate location of monitoring well(s) associated with the site
SC	Approximate source of contamination on site

b. L_METHOD

The location method (L_METHOD) field contains an alphanumeric code which provides information on both the method used to locate the site and the estimated level of data quality. The alpha portion of the code indicates the method of automation. Sites automated using the PDT have an alpha L_METHOD code of either "ORTH" or "TOPO". Location method codes containing "ORTH" indicate sites automated by on screen digitizing technique, using an orthophoto (1:5,000 or 1:12,000) image base. Location method codes containing "TOPO" indicate sites automated by on screen digitizing technique, using a USGS topographic (1:25,000) image base. For PDT automated locations, the numeric portion of the L_METHOD code represents an "estimated confidence" in the quality of the point location. This value is assigned by the mapper at the time the time of automation.

L_METHOD Codes/Criteria for Sites Automated Using the PDT:

CODE	CRITERIA
ORTH1 or **TOPO1**	Estimated to be +/-100-f t from L_TYPE
ORTH2 or **TOPO2**	Estimated to be100 – 500-ft from L_TYPE
ORTH3 or **TOPO3**	Estimated to be 500 – 1,000-ft from L_TYPE

Non-PDT location method codes such as "GPS," which indicate sites located using global positioning system (GPS) technology, have also been assigned numeric values indicating the general quality of the location.

L_METHOD Codes/Criteria for Sites NOT Automated Using the PDT:

CODE	CRITERIA
COOR1	Coordinate derived on screen by DEP technical staff, based on digital (1:5,000) orthophoto Image or coordinate pulled from survey grade map
COOR2	Coordinate derived by DEP technical staff, based on digital or analog USGS (1:25,000) topographic map or other non-survey grade map
COOR3	Derived from unverified coordinate data, self reported from regulated community, includes undocumented coordinate data from programmatic database (Note: locations from COOR3 data are not included in the datalayer)
DIGD1	Extracted from 1:5,000 base scale digital data
DIGD2	Extracted from 1:25,000 base scale digital data
DIGD3	Extracted from >1:25,000 base scale digital data
GPS_1	GPS verified location, averaged from 100+ 3D differentially corrected (DGPS) positions and mapped +/-100-ft from the target feature.
GPS_2	GPS verified location, averaged from 50-100 3D DGPS positions, or location averaged from 100+ 3D DGPS positions and mapped between 100 – 500-ft. of the target feature.
GPS_3	3D GPS verified location not conforming to GPS_1 or GPS_2 criteria. (examples: location averaged from < 50 3D GPS position, or any 3D DGPS location mapped >500-ft from the target feature.)

Note: GPS location method criteria are based on the specifications and optimal accuracy capabilities of the Trimble Navigation GeoExplorer II GPS receiver.

c. SOURCE

Codes contained in the SOURCE field indicate the type of source material used to locate the site.

Manuscript Map Source Codes:

LOCUS _<Type>	Locus map - Possible types include:	
	ATLAS	Road or street atlas based
	MGIS	MassGIS digital vector based
	ORTHO	Orthophoto based
	OTHER	Other locus types, ex. trail map
	USGS	USGS topographic quadrangle based
SURVEY_MAP	Survey grade map of site	
SITE_PLAN	Engineering site plan or map	
SKETCH_MAP	Hand sketched map of site (detailed or locus)	
TAX_MAP	Municipal tax assessment map	

Other Source Codes:

COORD_<Source>	Coordinate data, <Source> code indicates data provider:	
	BRP	DEP Bureau of Resource Protection
	BWP	DEP Bureau of Waste Prevention
	BWSC	DEP Bureau of Waste Site Cleanup
	EPA	US Environmental Protection Agency
DVD _<Source>	Digital vector data, <Source> code indicates data provider or digital datalayer:	
	21E	DEP BWSC Ch. 21E Tier Classified Oil or Hazardous Materials layer
	CCC	Cape Cod Commission
	DEV	Fort Devens
	DEP	MA Department of Environmental Protection
	FAC	DEP BWP Regulated Facilities datalayer

	MGIS	EOEA MassGIS
	MMR	Massachusetts Military Reservation
	NPL	US EPA National Priority List Datalayer
	SW	DEP BWP Solid Waste Facilities Datalayer
	UST	Underground Storage Tanks Datalayer
DPD_<Source>	Digital parcel data (see: DVD for possible <Source> codes)	
DPD_<Municipality>	Digital parcel data from MA Municipality	
GPSDS	DEP GPS field data sheets	
ORTHO_.5M	Interpolated from .5 meter orthophoto image	
ORTHO_1M	Interpolated from 1 meter orthophoto image	
ORTHO_2M	Interpolated from 2 meter orthophoto image	
SITE_VISIT	Field verified (see: L_METHOD fields for method of verification)	
STAFF_KNOW	Located by DEP staff through knowledge gained in the course of their professional activities.	
TEXT_DESC	Location determined from textual description of site	
USGS	Interpolated from 1:25000 USGS topographic quadrangle image	
VERB_DESC	Location determined from verbal description of site	
NO_DATA	No data available	

RELATED TABLES

The BWSC maintains and posts a file (wsc_all.zip) that can be downloaded from the DEP Web Site http://www.state.ma.us/DEP/bwsc/sites/sdown.htm. This compressed (.zip) file includes a database (.dbf) file containing a record for all reportable releases tracked by the BWSC, and accompanying documentation (wsc_all.doc). BWSC updates the wsc_all.dbf on a regular schedule. Tabular data records in wsc_all.dbf can be related to the Tier Classified Oil or Hazardous Materials Site datalayer by the RTN field. Please note that Tier Classified Chapter 21E sites are only a subset of the total reportable releases contained in the file wsc_all.dbf.

MAINTENANCE

The DEP GIS Program in cooperation with the DEP BWSC maintains this datalayer. Updates to this datalayer will be provided to MassGIS following the posting of updated wsc_all.zip data on the DEP Web Site. As a standard component of the update, The DEP GIS Program will remove from the datalayer sites that are no longer Tier Classified according to the latest BWSC data. The addition of new Tier Classified sites to the datalayer will be dependent on the availability of staffing resources and source information. Datalayer updates may also include refinements to existing site locations.

If you have questions regarding this datalayer, please contact the DEP GIS Program at (617) 574-6802 or (617) 574-6856. General and technical questions regarding Chapter 21E, the MCP and waste site cleanup in Massachusetts should be directed to the DEP BWSC at (617) 338-2255 or (800) 426-0444.

DEP BWP Major Facilities Datalayer
August 2000

OVERVIEW

The Department of Environmental Protection (DEP) Major Facilities datalayer is a statewide point dataset containing the location of a subset of facility types regulated by DEP's Bureau of Waste Prevention (BWP). The layer and coverage name is **BWPMAJOR**.

In a preliminary effort to begin locating facilities regulated by DEP, the BWP chose to locate facility types having the greatest potential environmental significance. At this time, the following facility types have been located:

- Large Quantity Generators of Hazardous Waste (LQG)
- Large Quantity Toxic Users (LQTU)
- Hazardous Waste Recyclers
- Hazardous Waste Treatment, Storage and/or Disposal Facilities (TSDF)
- Facilities with Air Operating Permits
- Facilities with Groundwater Discharge Permits

SOURCE

Data Universe

In April 1998, DEP's Facility Master File Database (FMF) was queried to identify facilities engaging in the activities listed above. A "development coverage" was created from this data using global positioning system (GPS), address-matched, and coordinate derived data developed at DEP and EPA Region 1.

Data Sources

The primary sources of information for this datalayer include:

- Site-specific knowledge of BWP Compliance and Enforcement staff
- GPS field verification by BWP and/or DEP GIS staff
- Surveys, site plans and locus maps from DEP records

The attribute section of this document contains additional information regarding data sources utilized in the development of this datalayer.

PRODUCTION

Point Development Tool

To facilitate conversion of institutional knowledge and paper data to a digital format, the DEP GIS Program created the Point Development Tool (PDT), a customized application using ESRI's ArcView software (the PDT application is available as an extension to the MassGIS DataViewer). The PDT provides a standardized platform that guides users through the automation and documentation of geographically referenced point data. DEP technical staff used the PDT to locate facilities based on knowledge gained in the course of their professional activities. On screen digitizing using the PDT was the primary method of automation.

Basemap Scale

Using data in the "development coverage," the PDT navigates data developers to the general vicinity of a site. The PDT then displays the best digital base imagery available for that vicinity. The PDT uses MassGIS 1 meter (1:5,000) black and white digital orthophoto images (DOQ) as the default basemap. Where 1 meter 1:5,000 DOQs were not available, the PDT defaulted to 1 meter USGS (1:12,000) black and white digital orthophoto images or (1:25,000) USGS topographic quadrangle imagery respectively. When data development began, the only available digital

basemap imagery for much of Massachusetts was the MassGIS scanned USGS (1:25,000) topographic images. Therefore, the base scale of this datalayer is considered to be 1:25,000.

Other Methodologies
In the absence of staff with professional knowledge, facility files were checked for location information. Facility files maintained by the DEP contain a variety of types and quality of maps, including surveys, site plans and locus maps. DEP GIS and BWP Program staff reviewed this file information and identified the best manuscript maps and supplemental text information for locating sites. Locations were entered using the PDT.

Whenever possible, facility locations derived from GPS field verification were refined using field notes, hand sketched field maps, and the basemap imagery described above. Some facility locations were derived from existing DEP datalayers containing solid waste facilities and Tier Classified Chapter 21E Oil or Hazardous Material sites.

ATTRIBUTES

1. Attribute Data Structure
The point attribute table (.pat) for the DEP Major Facilities datalayer contains the following items:

General Site Information Items:

ITEM	*TYPE-WIDTH*	*DEFINITION*
FAC_ID	B – 4 / 7	Facility ID from Facility Master File (FMF) Database
FAC_NAME	C – 45 / 45	Facility Name from FMF Database
ADDRESS	C – 38 / 38	Facility Address from FMF Database
TOWN	C – 21 / 21	MassGIS town name
DEP-ID	I – 1 / 1	MassGIS DEP Region code
RTN	C – 9 / 9	DEP BWSC 21e Release Tracking Number (RTN)
HW_ID	C – 12 / 12	EPA RCRAINFO Hazardous Waste Generator ID
NPDES_ID	C – 15 / 15	National Pollution Discharge Elimination System ID

Standard PDT Data Documentation Items:

ITEM	*TYPE-WIDTH*	*DEFINITION*
L_TYPE	C - 16 / 16	Location type
L_METHOD	C - 6 / 6	Location method
SOURCE	C – 30 / 30	Source material
PDT_COMMENT	C – 40 / 40	Development comments

Major Activity Items:

ITEM	*TYPE-WIDTH*	*DEFINITION*
AIR	C - 1 / 1	Air Operating Permit
GWD	C – 1 / 1	Groundwater Discharge
HWR	C – 1 / 1	Hazardous Waste Recycler
LQG	C - 1 / 1	Large Quantity Generator
LQTU	C - 1 / 1	Large Quantity Toxic User
TSDF	C - 1 / 1	Treatment, Storage and/or Disposal Facility

2. Description of General Facility Information Items
General facility information attributes are populated using DEP's Facility Master File (FMF) Database.

h. FAC_ID
Facility ID from DEP's Facility Master File (FMF) Database. The FAC_ID is a unique identifier used in the FMF Database to identify facilities and their ownership**.**

i. FAC_NAME
Facility name from the FMF Database.

j. ADDRESS
The number and street address of the facility, as listed in the FMF Database.

k. TOWN
The standard MassGIS town name.

l. DEP-ID
A code corresponding to the DEP Region in which the facility is located. This field uses standard DEP Region codes:

DEP-ID	DEP REGION – Office location	ACRONYM
1	Western Region - Springfield	WERO
2	Central Region – Worcester	CERO
3	Northeast Region – Wilmington	NERO
4	Southeast Region – Lakeville	SERO

m. RTN

If a relationship between a BWP Facility and a BWSC Chapter 21e site was uncovered in the data development process, the RTN field will be populated. The Release Tracking Number (RTN), is a unique 7-digit site identifier assigned to reportable releases by the BWSC. This number is preceded by the digit 1, 2, 3, or 4 (e.g. 3-0001234) according to the DEP region in which the site is located (see: description of DEP-ID above).

n. HW_ID

EPA Hazardous Waste Generator ID from the RCRAINFO database. A unique identifier generated by RCRAINFO, EPA's database formerly known as the Resource Conservation and Recovery Information System (RCRIS).

o. NPDES_ID

If a relationship between a BWP Facility and a National Pollution Discharge Elimination System (NPDES) facility was discovered in the data development process, the NPDES_ID field will be populated. The National Pollution Discharge Elimination System ID is a unique identifier generated by EPA.

3. Description of Standard Data Documentation Items

a. L_TYPE

The location type (L_TYPE) field contains a spatial reference code, indicating what the point represents. Current location type codes include:

CODE	DEFINITION
CB	Approximate center of building footprint as shown on base image
CB2	Approximate center of a building footprint, NOT positive on building identified
CF	Approximate center of a facility having more than one building or structure
CS	Approximate center of site or area of known contamination
CT	Approximate center of individual tank or cluster of tanks (UST or AST)
EL	Estimated location, implies absence of footprint on base image
FD	Front Door or main entrance to facility
ST	Air emission stack

b. L_METHOD

The location method (L_METHOD) field contains an alphanumeric code which provides information on both the method used to locate the site and the estimated level of data quality.

The alpha portion of the code indicates the method of automation. Sites automated using the PDT have an alpha L_METHOD code of either "ORTH" or "TOPO". Location method codes containing "ORTH" indicate sites automated by on screen digitizing, using an orthophoto (1:5,000 or 1:12,000) image base. Location method codes containing "TOPO" indicate sites automated by on screen digitizing, using a USGS topographic (1:25,000) image base.

For PDT automated locations, the numeric portion of the L_METHOD code represents an "estimated confidence" in the quality of the point location. This value is assigned via an interactive dialog with the data developer at the time the time of automation.

L_METHOD Codes/Criteria for Facilities Automated Using the PDT:

CODE	CRITERIA
ORTH1 or **TOPO1**	Estimated to be +/-100-f t from L_TYPE
ORTH2 or **TOPO2**	Estimated to be100 – 500-ft from L_TYPE
ORTH3 or **TOPO3**	Estimated to be 500 – 1,000-ft from L_TYPE

Non-PDT location method codes such as "GPS," which indicate facilities located using

global positioning system (GPS) technology, also have numeric values indicating the general quality of the location.

L_METHOD Codes/Criteria for Facilities NOT Automated Using the PDT:

CODE	CRITERIA
GPS_1	GPS verified location, averaged from 100+ 3D differentially corrected (DGPS) positions and mapped +/-100-ft from the target feature.
GPS_2	GPS verified location, averaged from 50-100 3D DGPS positions, or location averaged from 100+ 3D DGPS positions and mapped between 100 – 500-ft. of the target feature.
GPS_3	3D GPS verified location not conforming to GPS_1 or GPS_2 criteria. (examples: location averaged from < 50 3D GPS position, or any 3D DGPS location mapped >500-ft from the target feature.)

Note: GPS location method criteria are based on the specifications and optimal accuracy capabilities of the Trimble Navigation GeoExplorer II GPS receiver.

c.) SOURCE

Codes contained in the SOURCE field indicate the type of source material used to locate the site.

Manuscript Map Type Codes:

LOCUS _<TYPE>	Locus map (TYPE codes include):	
	ATLAS	Road or street atlas based
	MGIS	MassGIS digital vector based
	ORTHO	Orthophoto based
	OTHER	Other locus types, ex. trail map
	USGS	USGS topographic quadrangle based
SURVEY_MAP	Survey grade map	
SITE_PLAN	Engineering site plan or map	
SKETCH_MAP	Hand sketched map (detailed or locus)	

Other Source Types Codes:

COORD_<SOURCE>	Coordinate data (see: DVD below for <SOURCE> codes)	
DVD _<SOURCE>	Digital vector data, NOT parcel data	
	SW	DEP Solid Waste Facilities Datalayer
	21e	Tier Classified 21e OHM Sites Datalayer
GPSDS	DEP GPS field data sheets	
SITE_VISIT	Field verified	
STAFF_KNOW	Located by DEP staff through knowledge gained in the course of their professional activities	
USGS	Interpolated from 1:25000 USGS topographic quadrangle	

d.) PDT_COMMENT

Development and quality assurance notations such as clarification of the feature located, historical Facility IDs and additional source information can be found in the PDT_COMMENT field.

4. Description of Major Activity Items

The Major Activity Items are Y/N fields indicating which of the more significant types of activities occur at a given facility. There are no specific if/then relationships between any of the Major Activity items.

a. AIR

A value of "Y" indicates the facility has an active air operating permit. This is a permit with specific restrictions on the type and amount of particulate or other matter emitted from the facility.

b. GWD

A value of "Y" indicates the facility has an active groundwater discharge permit. Please note we have attempted to locate the center of the facility rather than a specific discharge location. Refer to the L_TYPE to see what feature of the facility was mapped.

c. HWR

A value of "Y" indicates the facility engages in the recycling of hazardous waste.

d. LQG

A value of "Y" indicates the facility is a large quantity generator of one or more hazardous wastes.

e. LQTU
A value of "Y" indicates the facility is permitted as a large quantity toxics user and falls under the requirements of the Toxic Use Reduction Act (TURA). For a Toxics Use Reduction Act overview, visit the DEP TURA webpage at http://www.state.ma.us/dep/bwp/dhm/tura/turaover.htm.

f. TSDF
A value of "Y" indicates the facility engages in the treatment, storage and/or disposal of hazardous wastes.

RELATED TABLES

DEP Tier Classified Oil or Hazardous Material Sites
The BWSC maintains a file (wsc_all.zip) that can be downloaded from the DEP Web Site http://www.state.ma.us/dep/bwsc/sites/sdown.htm. This compressed (.zip) file includes a database (.dbf) file containing a record for all reportable releases tracked by the BWSC, and accompanying documentation (wsc_all.doc). BWSC updates the wsc_all.dbf on a regular schedule. Tabular data records in wsc_all.dbf can be related to the BWP Major Facilities datalayer by the Release Tracking Number (RTN) field.

General and technical questions regarding Chapter 21E, the MCP and waste site cleanup in Massachusetts should be directed to the DEP BWSC Helpline at (617) 338-2255 or (800) 426-0444. Considerable information on the waste site clean-up program is available on the DEP Web Site: http://www.state.ma.us/dep/bwsc. For more comprehensive coverage of oil and hazardous material sites in the Commonwealth, see the DEP Tier Classified Chapter 21e Sites datalayer.

Toxic Use Reduction Act Facilities
The BWP maintains information that can be downloaded from the DEP Web Site http://www.state.ma.us/dep/bwp/dhm/tura. Data extract files, such as those found in ext1997.zip can be related to the BWP Major Facilities datalayer by the FAC_ID field.

The DEP TURA Web Site contains links to other related Web Sites, including that of the Massachusetts Toxic Use Reduction Institute, http://www.turi.org/turadata; a site where TURA information is presented in a searchable format.

Environmental Protection Agency data
The Environmental Protection Agency (EPA) Envirofacts Web Site http://www.epa.gov/enviro presents information in a searchable format. Using the Facility Name, Address information or HW_ID, facility records can be queried on the EPA RCRIS web page http://www.epa.gov/enviro/html/rcris/rcris_query_java.html

MAINTENANCE

The DEP Major Facilities datalayer is maintained by the DEP Bureau of Waste Prevention. A regular update schedule has not been determined at this time. Updates may include improvements to mapped facility locations and/or the location of major facilities not included in the datalayer at this time. Updates may also include additional facility types and an altered database structure.

If you have questions regarding this datalayer, please contact the DEP Bureau of Waste Prevention at (617) 292-5694.

Municipal Zoning Datalayer
September 1998

OVERVIEW

The MassGIS zoning datalayer represents the boundaries of municipal zoning districts. Because zoning is established at the municipal level, there is no standard classification of zoning districts across the state. While districts in different communities may have similar or even identical names, their definitions are often quite different. Generalized codes have been added to make these data useful for regional display. A related table contains detailed information about the districts such as setbacks or text descriptions from each community's zoning bylaws.

Though originally processed by municipality, the zoning coverages are tiled by USGS quad because many of these data do not conform exactly to the MassGIS TOWN library index due to scale differences and boundary anomalies. Stored in the QUAD2 library in the **ZONING** layer, each coverage is named **ZN**. Zoning Overlay Districts are also stored in the QUAD2 library in the **ZONINGOV** layer. Overlay District coverages are named **OV.**

This data layer is under development, and many communities are not yet available.

Zoning district boundaries change frequently and we have no process in place to regularly update these coverages. These data should therefore be used for regional analysis only and not as official zoning maps. The municipality's own official zoning map and current copy of the by-law should be considered as the final word on zoning boundary questions or issues.

PRODUCTION

MassGIS received zoning coverages for many towns and cities in Eastern Massachusetts from the Central Transportation Planning Staff (CTPS) in 1993. Many of these coverages have since been updated by the Regional Planning Agencies (RPAs) and forwarded to MassGIS. Other communities not processed by CTPS were digitized by the RPAs from community-supplied zoning maps (at various scales). There are also a few communities (Salem, Beverly, Middleton and Gloucester) that were digitized by the Essex County Registry of Deeds.

MassGIS staff have digitized some additional communites where 1:5000-scale orthophotography was available. Zoning maps for these communites were scanned and georeferenced to the orthophotography. District boundaries aligned to or offset by a known distance from identifiable features were edited with reference to the orthophoto. In some cases, coverages from other sources also went through this editing process. Eventually, all coincident features and offsets in the zoning data layer will be referenced to the orthophoto, but given the utility of these data in regional and watershed planning we have decided not to wait for that extra processing to be complete before releasing the data.

ATTRIBUTES

MassGIS used a workstation version of ARC/INFO to combine data from different communities into a quad-tiled library (QUAD2) with a standard ARC/INFO Polygon Attribute Table (**ZN.PAT**). A related table (**ZN.BYLAWS**) contains dimensional requirements for zoning districts. This table is related by the **ZONECODE** field.

Items in **ZN.PAT**

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	ALT. NAME
TOWN-ID	3	3	I	-	-
TILE-NAME	3	3	C	-	-
ZONECODE	10	10	C	-	ZC
PRIMARYUSE	2	2	I	-	PU
LANDUSE	1	1	I	-	LU
LASTEDITED	8	8	I	-	-
SOURCE	7	7	C	-	-

ZONECODE is the district zoning code, a concatenation of town-id and abbreviation from the zoning maps. For example, a Residential A District in Weston (town-id 333) might be coded 333RES A or 333RA depending on what abbreviations the zoning map uses. If no abbreviations appear on the map then MassGIS assigned abbreviations to the districts. **PRIMARYUSE** is a code used to generalize zoning districts into a statewide, standardized format. **LANDUSE** is a more generalized version of this coding. These codes were developed to facilitate looking at these data across community boundaries.

Primary Use codes:
1 - Single Family Residential
2 - Multi-Family Residential
3 - Residential/Agricultural Mix
4 - Other Residential
5 - Neighborhood Business
6 - Highway Business
7 - Central Business District (CBD)
8 - Office Park
9 - Other Business
10 - General Industrial
11 - Light Industrial
12 - Medical Services
13 - Institutional
14 - Conservation/Recreation
15 - Mixed Use (no dominant use)
16 - Research Park
17 - Village Business
18 - General Business
19 - Other

Land Use codes:
1 - Residential
2 - Commercial
3 - Industrial
4 - Restricted (includes open space and protection overlay districts.)
5 – Other

LASTEDITED is the date of latest editing in numerical format (i.e. 19981002 for Oct. 2, 1998). **SOURCE** is the source of the data. If digitized from a community's zoning map, the source will be listed as "TOWN". For a more complete listing of sources of features and attributes by community, consult the source table **ZN.PSC** in the library's database directory.

Items in **ZN.BYLAWS**:

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE
1	ZONECODE	10	10	C
11	CODE	7	7	C
18	ZONEDIST	40	40	C
58	MINLOTSIZE	8	11	F
66	MINFRONT	8	11	F
74	ML_TSVCS	8	11	F
82	ML_NSVCS	8	11	F
90	ML_1FAM	8	11	F
98	ML_2FAM	8	11	F
106	ML_XFAM	8	11	F
114	MLXBYUNIT	8	11	F
122	ML_SIT1	8	11	F
130	ML_SIT2	8	11	F
138	MF_TSVCS	8	11	F
146	MF_NSVCS	8	11	F
154	MF_1FAM	8	11	F
162	MF_2FAM	8	11	F
170	MF_XFAM	8	11	F
178	MF_SIT1	8	11	F
186	MF_SIT2	8	11	F
194	FAR_MAX	4	6	F
198	BLDCOV_MAX	4	6	F
202	LOTCOV_MAX	4	6	F
206	MAXHEIGHT	8	11	F
214	MAXSTORIES	4	4	F
218	SETBACK_F	8	11	F
226	SETBACK_SD	8	11	F
234	SETBACK_R	8	11	F
242	COMMENTS1	30	30	C
272	COMMENTS2	30	30	C
302	COMMENTS3	30	30	C

ZONECODE links this table to the **ZN.PAT**s in the library. **CODE** is the district's abbreviation from the zoning map. This field is also used to create annotation. **ZONEDIST** is a full descriptive name of the zoning district. **ML** is the minimum lot size and **MF** is minimum frontage. There are many ways that communities break down these requirements and some of the more common ones are represented by attributes in the tables. For example, a district may have a minimum frontage of 40 feet for single-family homes but only 35 feet for two-family and multi-family units. In this instance **MF_1FAM** = 40, **MF_2FAM** and **MF_XFAM** = 35. **MLXBYUNIT** is for cases when lot size is specified as per number of housing units. For any other situation, one can use the **ML_SIT1** or

ML_SIT2 fields and describe SIT1 in **COMMENTS1** and SIT2 in **COMMENTS2**. **SETBACK**s (front, side and rear), **FAR**s (floor area ratios), maximum heights (**MAXHEIGHT**) and number of stories (**MAXSTORIES**), building coverages (**BLDCOV_MAX**) and lot coverages (**LOTCOV_MAX**) also are in this table.

There is an annotation subclass (ANNO.CODE) which can be used to display the zoning district abbreviations on a map. Annotation will be updated along with coverage attributes.

OVERLAY DISTRICTS

Another library layer called **ZONINGOV** contains overlay districts that appear on the zoning map or are described in the by-law. These data are stored in the QUAD2 library and the coverages are named **OV**. The **OV.PAT** classifies overlay districts by type.

Items in **OV.PAT**:

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE
1	AREA	4	12	F
5	PERIMETER	4	12	F
9	OVERLAYS#	4	5	B
13	OVERLAYS-ID	4	5	B
17	POLY-ID	5	5	I
22	FL	7	7	C
29	AE	7	7	C
36	HD	7	7	C
43	AQ	7	7	C
50	HT	7	7	C
57	I	7	7	C
64	WF	7	7	C
71	VG	7	7	C
78	HY	7	7	C
85	WP	7	7	C
92	WC	7	7	C
99	X	7	7	C

Descriptions of items:

FL	Floodplain	
AE	Adult Entertainment	
HD	Historic District	
AQ	Aquifer Protection	
HT	Height Restriction Zone	
I	Institutional Overlay	
WF	Waterfront District**VG**	Village District
HY	Highway District	
WP	Water Protection	
WC	Wireless Communication Area	
X	Other	

In order to make each overlay district code unique, a town-id is concatenated onto the beginning of each overlay code. Thus a flood plain overlay in town 27 would have its FL = 27FL. An overlay in the same town that doesn't fit into the above set of general desriptions would have X = 27X. The .pat is set up this way to allow for a polygon to be in multiple overlay districts simultaneously without using region features and to allow lookup to a table containing detailed description of each overlay district by town.

A table of overlay districts and detail on their requirements will be accessed by relates to the overlay .pat as follows:

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	OVDIST	7	7	C	-
8	DESC	30	30	C	-
38	REGS	60	60	C	-
98	CITATION	60	60	C	-

Example:

Record	OVDIST	DESC	REGS	CITATION
1	77FL	FLOOD PLAIN	NO DUMPING OR NEW CONSTRUCTION	
2	77AQ	AQUIFER PROTECTION DIST	MAXIMUM WELL DEPTH 50 FEET	
3	304HD1	HISTORIC PRES. DIST A	HISTORICALLY APPROPRIATE SIDING ON OLD BLDGS	
4	304FL	FLOOD PLAIN	NO SOIL REMOVAL OR NEW CONSTR.	

MAINTENANCE

MassGIS maintains this data layer. See http://www.state.ma.us/mgis/st_zon.htm for the most current status.

Outstanding Resource Waters Datalayer
March 1997

OVERVIEW

This datalayer delineates those areas afforded Outstanding Resource Waters classification under the Massachusetts Surface Water Quality Standards of 1995. According to 314 CMR 4.00: "Certain waters shall be designated for protection under this provision in 314 CMR 4.06(3) including Public Water Supplies (314 CMR 4.06(1)(d)1.). These waters constitute an outstanding resource as determined by their outstanding socioeconomic, recreational, ecological and/or aesthetic values. The quality of these waters shall be protected and maintained." (March 1, 1995). This datalayer is stored as a single statewide coverage, **ORW**, in the STATE library.

MANUSCRIPT

The original source materials for this datalayer correspond to the MassGIS drainage subbasins and Areas of Critical Environmental Concern (ACEC) datalayers. Additional water supply watershed information was gathered from overlaying existing data onto USGS 1:25,000 quads and delineating additional watersheds. Other data was collected by buffering the existing MassGIS community boundaries and 1:25,000 hydrography datalayers.

METHODOLOGY

The existing MassGIS drainage subbasin datalayers were plotted on Mylar at 1:25,000 scale with the surface water withdrawal points from the MassGIS public water supplies datalayer. The basins of the surface water supplies were identified and if necessary additional drainage basins were delineated from the intake points of public water supplies. From these basins all upstream basins were coded as contributing to a surface public water supply. These basins were compared against the Massachusetts Surface Water Quality Standards of 1995 to determine which basins were designated as containing Outstanding Resource Waters (ORW). Additional areas added included ACECs, drainage basins of protected scenic rivers, protected wetlands areas and areas that contribute to other states' surface water supplies. This information was extracted from the component datalayers and appended into a single ORW datalayer.

ATTRIBUTES

In order to differentiate between ORW areas protected because of public drinking water supplies and other areas, the attribute **ORW** was added and coded as follows:

ORW	ORW Description
1	ORW contributing area of a public surface water supply
2	Other ORW area (ACEC, protected stream, etc.)

EDITING

The entire datalayer was check plotted by MA DEP region and quality checked by MA DEP Wetlands Conservancy Program staff.

MAINTENANCE

The DEP GIS Program maintains this data layer.

Ground Water Discharge Points Datalayer
March 1997

OVERVIEW

The Ground Water Discharge Points were compiled by the Department of Environmental Protection (DEP) Division of Water Pollution Control (DWPC) Ground Water (GW) Section. The datalayer contains permitted discharges of sanitary sewage in excess of 10,000 gallons per day (gpd), discharges of non-contact cooling water, discharges from coin operated laundromats, carwashes and treatment systems designed to remediate contaminated groundwaters. Information was collected from the Permit Application Files in the Boston Office. The coverage consists of 200 points, representing approximately 85% of the total number of discharge points. The data layer is stored as a single statewide coverage, **GWP**, in the STATE library.

As stated in 314 CMR 5.00, the Division will control the discharge of pollutants to the ground waters of the Commonwealth to assure that these waters are protected for their highest potential use.

MANUSCRIPT

Data were originally constructed from a Lotus Worksheet maintained by DEP/DWPC/GW. Collection of point locations began in 1989 and is ongoing. Points were first marked on USGS quadrangle sheets and then digitized.

METHODOLOGY

Once all point locations were verified by the project engineer or by a GIS staff site visit, points were digitized from the USGS quadrangles into Arc/INFO. Quadscale checkplots were made and then visually compared to the quads.

ATTRIBUTES

This data layer has a .PAT with the following items:

NUMA - unique permit number assigned to the site by DEP.

STAT - The status / type of discharge.
- 1 = Sanitary Discharge
- 2 = Industrial Discharge
- 3 = Reclamation (Remediation)
- 5 = Car Wash
- 6 = Laundromat

REGION - The DEP Region where the discharge is located.
- N = Northeast
- S = Southeast
- C = Central
- W = Western

MAINTENANCE

The DEP Division of Water Pollution Control is maintaining this datalayer. Updates are planned annually.

FEMA Q3 Flood Datalayer
July 1997

OVERVIEW

These data represent a subset of the data available on the paper Flood Insurance Rate Maps (FIRM) as provided by the Federal Emergency Management Agency (FEMA). The Q3 flood data were developed to support floodplain management and planning activities but do not replace the official paper FIRMs. These data are not suitable for engineering applications or site work nor can the data be used to determine absolute delineations of flood boundaries. Instead the data should be used to portray zones of uncertainty and possible risks associated with flooding. The Q3 flood data is tiled by the **QUAD** library, as layer **Q3FLOOD** and coverage name **Q3**.

METHODOLOGY

FEMA created the Q3 Flood data by scanning current FIRM paper maps and vectorizing the data. Though the scales of the map sheets vary and the original paper FIRMs contain no horizontal control, the data do have horizontal control consistent with 1:24,000 maps. This was accomplished by fitting the flood data to a USGS quadrangle. Edgematching, overlaps and underlaps in data and other problems were not corrected during the conversion process. The data were received from FEMA as Arc/INFO export files that were processed by MassGIS and incorporated into the data library. While FEMA intends to perform biannual review of data, the user is advised to confirm that the digital data does indeed represent the most current FIRMs.

ATTRIBUTES

The attributes for the datalayer have been minimally modified by the addition of the item TILE-NAME and COUNTY. All other items are as supplied by FEMA. While the metadata files provide some descriptions of the items and their values, the FEMA-generated metafiles contain detailed descriptions of both. The FEMA metadata for this layer are found in hardcopy at MassGIS or in softcopy as ASCII files in the QUAD library under the database/Q3META subdirectory. The polygon attribute table (.PAT) for Q3 flood data has the following structure:

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
1	AREA	8	18	F	5	
9	PERIMETER	8	18	F	5	
17	Q3#	4	5	B	-	
21	Q3-ID	4	5	B	-	
25	TILE-NAME	8	8	C	-	identifier for librarian
33	COUNTY	10	10	C	-	county name
43	FIPS	5	5	C	-	5 digit state and county FIPS code
48	COMMUNITY	4	4	C	-	county,city or community responsible for floodplain mgmt
52	FIRM_PANEL	11	11	C	-	code to identify portion of community covered/not covered by FIRM panel
63	QUAD	8	8	C	-	FEMA id to identify USGS 7.5 minute quad
71	ZONE	5	5	C	-	flood hazard zone designation
76	FLOODWAY	5	5	C	-	channel, river or watercourse reserved for flood discharge
81	COBRA	9	9	C	-	id whether in or out of coastal barrier resources system area
90	SFHA	3	3	C	-	in/out of flood zone designation
93	SYMBOL	4	5	B	-	FEMA polygon shade symbol for graphic output
97	PANEL_TYP	4	4	C	-	type of FIRM panel represented
**	REDEFINED ITEMS **					
43	ST-FIPS	2	2	C	-	state FIPS code
45	CO-FIPS	3	3	C	-	county FIPS code
43	STATE	2	2	C	-	state FIPS code
54	PCOMM	4	4	C	-	FIRM community/county identifier
58	PANEL	5	5	C	-	FIRM panel number and suffix
63	LAT	2	2	C	-	origin latitude of 7.5 minute quadrangle
65	LONG	3	3	C	-	origin longitude of 7.5 quadrangle
69	QUAD_UNIT	2	2	C	-	index number to 7.5 quadrangle

MAINTENANCE

The datalayer is managed by MassGIS but no effort has been or will be made to correct data discrepancies. FEMA does not recommend the alteration of the data. As a final reminder, these data ***do not*** replace the paper FIRMs which remain the official documents.

Flood Insurance Rate Map Zones V and AO Datalayer
April 1997

OVERVIEW

The Federal Emergency Management Agency designated velocity and over-wash zones from the Flood Insurance Rate Maps were compiled by the Resource Mapping Project staff at the University of Massachusetts, Amherst for the Massachusetts Coastal Zone Management (MCZM) Program. The data are stored as a single statewide coverage named **FIRMAOV**.

MANUSCRIPT

Paper FEMA Flood Insurance Rate Maps at a variety of scales.

METHODOLOGY

A polygon coverage was built by digitizing delineations interpreted on paper 1:24,000 USGS Topographic maps. The delineations were transferred to the USGS base from the FEMA Flood Insurance Rate Maps utilizing a Zoom Transfer Scope. The shoreline used in this coverage is from the MassGIS 1:25,000 source. The automation of this data was conducted in May, 1993. Minor changes to the delineations have been made and published by FEMA.

ATTRIBUTES

The data layer has a .PAT with the following items:

Item Name	Width	Output	Type	Comments
POLYID	4	5	B	1 = Land 2 = Water 3 = Non MA Land 4 = Velocity Zone 5 = Over-wash Zone
FPNAME	8	8	C	"V" or "AO" designation.

MAINTENANCE

Currently there are no plans to update this data by MCZM.

Insect Infestation Datalayers
May 1998

OVERVIEW

The DEM insect infestation data layers indicate the areas that have been defoliated by insects, diseases, or natural weather events on a year to year basis. Data is currently available from 1961 to the present. When the project is complete data will be available from 1934 through 1946 (with no defoliation in 1942 and 1943) and from 1961 to present. There is a separate data layer for each year, each named bugs<YY>.

The DEM, Bureau of Forestry, Forest Health Program uses this information to follow various forest stress factors that might be causing a decline of the forest resource.

PRODUCTION

Each year the entire state is flown by trained observers at an altitude of approximately 2000 feet above the forest canopy. All areas that look abnormal are sketched on to USGS topographic maps. These areas are then visited on the ground to document the cause of the problem. All polygons are labeled as to the cause of the problem and digitized into GIS.

From 1962 to the present 1:24,000 or 1:25,000 scale maps are used. Prior to 1961 the 1:62,500 scale maps were used.

ATTRIBUTES

For 1996 and earlier:

COMMON-NAME	Common Name of the Insect
ACRES	Approximate area defoliated
TOWN-ID	MassGIS town code
TOWN	Town Name
FIPS-STCO	Federal Information Processing Standard State/County Code (FIPS ID)

In 1997, attribute table was changed, at the request of the US Forest Service, to conform to other states.

Attributes for 1997:

DMG_TYPE1	Primary type of damage
DMG_TYPE2	Second type of damage (where applicable)
DMG_TYPE3	Third type of damage (where applicable)
SEVERITY1	Severity of primary type of damage
SEVERITY2	Severity of second type of damage (where applicable)
SEVERITY3	Severity of third type of damage (where applicable)
PATTERN1	Pattern of primary type of damage
PATTERN2	Pattern of second type of damage (where applicable)
PATTERN3	Pattern of third type of damage (where applicable)
DCA1	Damage causing agent for primary type of damage
DCA2	Damage causing agent for second type of damage (where applicable)
DCA3	Damage causing agent for third type of damage (where applicable)
FOREST_TYPE	Predominant type of forest
HOST1	Host species affected
HOST2	Second host species affected (where applicable)
HOST3	Third host species affected (where applicable)
ACRES	Approximate area affected
FIPS-STCO	FIPS ID
TOWN	Town name
TOWN-ID	MassGIS town code

Codes for new fields:

DMG_TYPE	1 - Defoliation 2 - Discoloration 3 - Dieback 4 - Branch Breakage 5 - Main stem broken/uprooted 6 - Mortality
SEVERITY	1 - Light (up to 50%)

	2 - Mod-Heavy (over 50%)
PATTERN	1 - Host species more than 50% in polygon and contiguous 2 - Host species more than 50% in polygon, damage patchy 3 - Host species less than 50% in polygon, damage scattered
DCA	5-digit code for several hundred possibilities; use DCA1.LUT, DCA2.LUT, and DCA3.LUT examples: 12089 gypsy month*Lymantria dispar* 14004 hemlock wooly adelgid*Adelges tsugae* 22042 beech bark disease*Nectria coccinea* 50013 wind/tornado 70007 logging damage
FOREST_TYPE	4-digit code for scores of possibilities; see documentation for specifics. examples: 0030 White pine 0040 White pine/hemlock 0410 White pine/northern red oak/white ash
HOST	3-digit code for scores of possibilities; use HOST1.LUT, HOST2.LUT, and HOST3.LUT examples: 043 Atlantic white cedar 129 Eastern white pine 833 Northern red oak

MAINTENANCE

Each summer as the aerial survey is completed the data will be added as a new data layer. DEM is maintaining this datalayer.

DEP DWM Monitoring Stations Datalayer
December 1997

OVERVIEW

The DEP Division of Watershed Management (DWM) Monitoring Stations datalayer represents points on rivers, ponds and lakes where water-quality samples were taken by DWM staff during 1995 and 1996. DWM and the MA Department of Environmental Protection GIS Group compiled the datalayer. Most station locations were chosen to support the environmental monitoring phase of the Massachusetts Watershed Initiative. New stations will be added as additional watersheds complete this phase and the related monitoring data pass the DWM quality control and quality-assurance checks. Monitoring results are stored in related INFO tables described under ATTRIBUTES (below). Data maintained in these tables is reported by the DWM in assessment reports. These are available upon request by contacting the Division of Watershed Management at 508-792-7470. The coverage is stored as a statewide layer named **DWM_STATIONS**. The coverage name is **DWM_STAT**.

MANUSCRIPT

The data layer was created using field descriptions recorded by the staff at the time the samples were taken. These transcriptions were then transferred to 1:24000 or 1:25000 USGS topographic quadrangles. Station identification codes are assigned by DWM and used in the Water Quality Data Database. Tables from the Water Quality Database can be linked with this data layer using the UNIQUE_ID item. Stations in approximately 12 major basins are included in this data layer.

PRODUCTION

Locations recorded on 1:24000 and 1:25000 USGS topographic maps were transferred to a point coverage using on-screen digitizing and registered images of the USGS topographic maps. Watershed teams were consulted to ensure the accuracy of this transferal.

ATTRIBUTES

This data layer has a .PAT with the following items:

UNIQUE_ID	code corresponding to DWM database
LONG	longitude
LAT	latitude

RELATED TABLES

Data generated from surveys conducted by DWM staff are maintained in the four tables listed below.

DWM_STAT.STAID

Station location and identification information. This table contains fields that describe the station. This table is related to the data coverage by use of the UNIQUE_ID field. The UNIQUE_ID is also used to relate to the FIELD table. This table contains one record for each station location. Fields in the STAID Table:

UNIQUE_ID	Unique identifier assigned individual monitoring stations used to relate to point coverage and FIELD table
STATUS	Status of data at time of publication
TYPE	Station type (W=Water Column, D=Discharge Pipe - Not an instream station)
SARIS	Stream and River Identification System code
PALIS	Pond and Lake Identification System Code
WBNAME	Name of water body where the station is located
MILEPT	River mile upstream from mouth (Mouth is defined as river mile 0.0). Code "-9" are stations at the confluence of rivers
STAID	Station ID assigned and used by Watershed Team
DESCRIPTOR	Detailed description of station location

DWM_STAT.FIELD

Field record of sampling surveys. This table records the date and time that samples were taken in the field as well as information for tracking the sample and quality control and assurance. This table is related to the STAID table by the UNIQUE_ID field (which in turn is linked to the data

layer). It is possible to relate the FIELD table directly to the data layer using the UNIQUE_ID field; however, it is not recommended. This table contains one record for each visit to a station during a sampling survey. Most stations are visited more than once. Fields in the Field table:

UNIQUE_ID	nique identifier assigned individual monitoring stations used to relate to FIELD table
OWMID	Identifying code assigned to individual samples. Used to link to both the LAB and HYDRO tables
STATUS	Status of data at time of publication
QAQC	Identifies field QAQC samples (BLANK = Distilled Water Blank, Split samples are indicated by populating this field with the OWMID of the paired sample)
SDEPTH	Depth at which discrete samples are collected for laboratory analysis ONLY. This field is only populated where sampling apparatus allowing collection of samples below the surface has been used
DATE	Date of sample collection
TIME	Time of sample collection in 24-hour format
WDO	Azide modification of Winkler method on grab sample
DTEMP	Temperature, in degrees Celsius, in field using a hand-held thermometer
METER	Meter used for in situ determinations of one or more of the following: depth, temperature, salinity, dissolved oxygen, specific conductivity, and pH. (YSI=Yellow Springs Instruments, HLB=Hydrolab Surveyor II without data logging). Note: Measurements using a Hydrolab Surveyor 3 multiprobe instrument with data logger are maintained in the HYDRO table.
MDEPTH	Depth in meters (m) measured by instrument indicated in the field METER
MTEMP	Temperature in degrees Celsius (°C) measured by instrument indicated in the field METER
MSALINITY	alinity in parts per thousand (ppt) measured by instrument indicated in the field METER
MDO	Dissolved Oxygen in milligrams per liter (mg/l measured by instrument indicated in the field METER.
MSPECOND	pecific Conductivity (?mhos/cm) measured by instrument indicated in the field METER
MPH	pH in standard pH units (SU) measured by instrument indicated in the field METER

LAB

Results of laboratory analysis of discrete samples collected by DWM staff during a sampling survey and analyzed at the Wall Experiment Station. The LAB table is related to the FIELD table using the OWMID field. This table contains one record for each set of sampling bottles collected at a station and sent to the lab for analysis. Codes used in populating data into the fields below are:

Results reported less than detection limits are entered as negative values. (i.e. a result of <0.02 is entered as -0.02)

-7 = Interference
-8 = Missing data (i.e. broken bottle, lost sample, censored data)
-9 = Result was reported as a literal zero "0". Null value indicates no data.

OWMID	Identifying code assigned to individual samples. Used to relate to the FIELD table
STATUS	Status of data at time of publication
PH	pH (standard pH units)
ALK	Alkalinity (mg/l)
HARD	Hardness (mg/l)
SPECCOND	Specific Conductivity (?mhos)
CHLORIDE	Chlorides (mg/l)
SSOLIDS	Suspended solids (mg/l)
TSOLIDS	Total solids (mg/l)
TURB	Turbidity (NTU)
TKN	Total Kjeldahl Nitrogen (mg/l)
AMMONIA	Ammonia Nitrogen (mg/l)
NITRATE	Nitrate Nitrogen (mg/l)
TPHOS	Total Phosphorus (mg/l)
EXTBLAB	Yes/No. Indicates if bacteria results are from a lab other than the Wall Experiment Station
TCOLIFORM	Total coliform bacteria (cfu/100 ml)
FECAL	Fecal coliform bacteria (cfu/100 ml)
FECALSTREP	Fecal Streptococci (cfu/100ml)

HYDRO

Results of measurements made in situ using a Hydrolab Surveyor 3 multiprobe instrument with data logger. The HYDRO table is linked to the FIELD table using the OWMID field. This table contains one record for each visit to a station during a survey.

OWMID	Identifying code assigned to individual samples. Used to link to the table
STATUS	Status of data at time of publication
TIME	Time of measurement (Hours:minutes:seconds)
TEMP	Temperature in degrees Celsius (°C)
PH	pH in standard pH units (SU)
SPCOND	Specific conductivity in microsiemens (?S/cm)
DOSAT	Percent dissolved oxygen saturation (%)
DO	Dissolved oxygen (mg/l)
DEPTH	Depth in meters (m)
TURB	Turbidity (NTU)
DATE	Date of measurement

MAINTENANCE

DEP GIS Group and DWM are maintaining this data layer.

USGS Data-Collection Stations Datalayer
November 1998

OVERVIEW

The US Geological Survey (USGS) maintains data-collection stations throughout Massachusetts. This statewide datalayer, **DCSITE98**, represents active and discontinued stations at which USGS collects or had previously collected streamflow data. Though maintained by USGS, the stations are funded by various sources. The points represent four types of data-collection stations. Type 1 stations are streamflow-gaging stations, where data are or have been collected continuously for numerous uses. Type 2 stations are peak-flow partial-record stations, where data are collected only when streamflows are high relative to normal conditions. Data from type 2 stations are used to compute peak-flow frequency statistics, such as the 100-year recurrence interval flood. Type 3 stations are low-flow partial-record or miscellaneous-measurements stations, where data are collected primarily for estimating low-flow statistics, such as the 7-day, 10-year low flow, but data may also be collected at these stations for other purposes specific to individual hydrologic studies. Type 4 stations are those that have been operated both as a type 2 and a type 3 station, either at the same or at different times. Of the 725 stations included in this data layer, data were collected at only 85 streamflow-gaging stations during 1998. All other stations were inactive, but streamflow statistics for all the stations are available.

MANUSCRIPT

Data-collection station locations and attributes were derived from the National Water Information System database of the USGS.

METHODOLOGY

USGS staff created an ASCII file of latitude, longitude and attribute data pulled from the data base. This file was then used to generate a point coverage. The coordinates were originally measured from USGS 1:25,000 and 1:24,000 topographic quadrangles with an accuracy to one second.

ATTRIBUTES

This data layer has a .PAT (polygon attribute table) with the following items:

STATION#	Data-collection station identifier
LONG	Longitude of station
LAT	Latitude of station
TYPE	Type of data-collection station, where streamflow records are or have been collected: 1 = streamflow-gaging station where continuous streamflow records are or have been collected 2 = peak-flow partial-record station 3 = low-flow partial-record or miscellaneous-measurement station 4 = peak- and low-flow partial-record station

MAINTENANCE

MassGIS is maintaining this layer. Updates will be made as information is made available from USGS.

Stream-Gaging Stations Datalayer
May 1996

OVERVIEW

The US Geological Survey (USGS) maintains stream-gaging stations in Massachusetts. This datalayer, **GAGES94**, represents the stations managed by USGS in 1994. Though maintained by USGS, these seventy one stations are funded by various sources. The points in this datalayer are fairly stable from year to year, though new gages are added and others removed as project work requires. This datalayer is stored as a single point coverage in the State library.

MANUSCRIPT

Gaging station locations and attributes were derived from the data report "Water Resources Data, Massachusetts and Rhode Island Water Year 1994", Gadoury, R.A., Socolow, R.S., Girouard, G.G., Ramsbey, L.S., U.S. Geological Survey. The reference for this data report is MA-RI-94-1, 1995.

METHODOLOGY

USGS staff created an ascii file of latitude, longitude and attribute data pulled from the data report. This file was then used to generate a point coverage. The coordinates were originally measured from USGS 1:25,000 and 1:24,000 topographic quadrangles with an accuracy to one second.

ATTRIBUTES

This data layer has a .PAT with the following items:

STATION#	gaging station identifier
LONG	longitude of gaging station
LAT	latitude of gaging station
FUND	source of funding for gaging station maintenance
CODE	funding source code

MAINTENANCE

MassGIS is maintaining this datalayer. Updates will be made as information is made available from USGS.

Water Quality Monitoring Stations
October 1999

OVERVIEW

Massachusetts Coastal Zone Management (MCZM), within the Executive Office of Environmental Affairs (EOEA), has compiled a water quality sampling GIS coverage for the Parker River/Essex Bay Area of Critical Environmental Concern (ACEC) project. The purpose of the project was to develop a regional picture of water quality information. The coverage has an associated database including information on who is collecting the samples and the parameters being measured for each site. The focus area for this project includes the areas between Salisbury and Gloucester.

METHOLODOGY

CZM gathered existing information from agencies and organizations doing water quality sampling in this area, most of which was not in a GIS format. These agencies included: Department of Environmental Protection (DEP) Division of Marine Fisheries (DMF); Department of Fisheries, Wildlife & Environmental Law Enforcement (DFWELE) Division of Watershed Management (DWM); Ipswich River Watershed Association (IRWA); Massachusetts Audubon Society (MAS); Merrimack Valley Planning Commission (MVPC); Parker River Clean Watershed Association (PRCWA); and Woods Hole/Marine Biological Lab. Data was then compiled in ArcView as Shapefiles and joined with each agency's database. This process varied for each agency depending on their existing data format, described as follows:

DEP DMF: Data points were downloaded from MassGIS as an ArcInfo Export file and imported to ArcView. The associated database was compiled as a spreadsheet and joined with the shapefile.

DFWELE DWM, MVPC, Woods Hole/Marine Biological Lab: Data points and attributes were compiled by each agency and sent as an ArcView shapefile.

IRWA, MAS, PRCWA: Data points were identified by each agency on USGS 7.5-minute quadrangle maps and were then on-screen digitized using scanned quad images from MassGIS. The associated database was created from existing reports and reports that are in the process of being completed by agency staff.

ATTRIBUTES

This data layer has a **.PAT** with the following items:

ID	ID NUMBER FROM THE VARIOUS AGENCIES
STATN_CODE	STATION ID ASSIGNED BY WATERSHED TEAM
STAT_CODE	STATION CODE INCLUDING ORGANIZATION
STAT_NAME	STATION NAME AS GIVEN BY THE ORGANIZATION MONITORING
HOW_OFTEN	HOW OFTEN SAMPLES WERE TAKEN
PARAMETERS	PARAMETERS BEING SAMPLED
STREAM	NAME OF WATER WHERE STATION IS LOCATED
TOWN	NAME OF TOWN WHERE STATION IS LOCATED
METHOD	HOW PARAMETERS WERE BEING TESTED
REPORT	REPORT FROM WHICH THIS INFORMATION WAS RECEIVED
SOURCE	HOW STATION WAS LOCATED ON THE MAP
FECALCOLI	DETERMINES IF FECAL COLIFORM WAS SAMPLED FOR
DATE_START	DATE SAMPLE COLLECTION BEGAN
DATE_STOP	DATE SAMPLE COLLECTION ENDED
CONTACT	ORGANIZATION RESPONSIBLE FOR SAMPLING SITE

MAINTENANCE

All project work has been archived at MCZM offices. For further information, please contact Data Manager, Diane Carle, (617) 626-1222, MCZM, Boston, MA

Shellfish Sampling Stations Datalayer
October 2000

OVERVIEW

The Shellfish Sampling Station datalayer was compiled by the Department of Fisheries, Wildlife and Environmental Law Enforcement's (DFWELE) Division of Marine Fisheries (DMF). Approximately twenty-seven hundred station locations in Massachusetts have been designated by DMF's Shellfish Project, and are stored as a single point coverage in the NE library named **SHLFSHST**. These point locations range from sites for collecting water quality and shellfish samples, to marine biotoxin (PSP) samples to locations of marinas and mooring fields. Each station is associated to a designated shellfish growing area (see separate datalayer description Designated Shellfish Growing Area Datalayer). This coverage reflects classification station locations as of July 1, 2000.

METHODOLOGY

The station locations were defined by DMF shellfish project biologists. Compilation base maps covering the entire coast and islands were plotted at 1:12,000 using hydrography from 1:24,000 USGS DLG; 1:100,000 USGS DLG; and 1:25,000 USGS Topographic maps, all modified and enhanced by MassGIS. Other information such as town boundaries, the territorial waters line and roads were plotted on these base maps for reference. Shellfish project biologists compiled station locations on to the base maps, and these points were then digitized by DMF GIS personnel. Check plots were created and station locations QA/QC'd by the biologists.

PRODUCTION

Separate 11 x 17 color plots were produced for each growing area based on the mapextent of the area and its sampling stations. Station points needing to be moved or added are compiled on these plots and automated by DMF GIS staff. A new 11 x 17 is produced and kept on file until another station change occurs.

ATTRIBUTES

This datalayer has a **.PAT** file with the following attribute associated with each point:

SHLFSHST-ID	Station ID number
GRW_AREACD	Designated shellfish growing area code. Each classification station is associated to one designated shellfish growing area.
CL_AREANM	Classification area name. Each classification station is also associated to one classification area (which is a sub-area of a designated shellfish growing area).
STAT_TYPE	Station type. In all cases this is CLASSIFICATION (Locations where water and shellfish samples are collected on a routine basis. These samples are tested for fecal coliform content, the results of which are used for classifying areas for harvest of shellfish for human consumption)
STAT_NAME	Station name
STAT_DATE	Data the station was established
LOCATION	Location description

The SHLFSHST-ID links to several tables in an Oracle relational database. Information in the database is extensive and covers the station name and type, a brief location description, and sample data collected at the location. In addition, each of these point locations is associated to a designated shellfish growing area and the growing area's classification (management) areas. A separate GIS datalayer has been created to maintain the areas. See the Designated Shellfish Growing Area datalayer description.

MAINTENANCE

The MA Division of Marine Fisheries and MassGIS are maintaining this datalayer. For further information about this coverage and other data associated with these stations, contact the MA Division of Marine Fisheries Shellfish Project at either Pocasset (508-563-1779) or Newburyport (978-465-3553).